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THE NEW INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S
PROGRESS
FOR THE YEAR
1927

EDITOR
HERBERT TREADWELL WADE

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PREFACE

The New International Year Book, in its twenty-sixth volume herewith presented, furnishes a concise yet comprehensive historical narrative for the year 1927. Arranged along lines which for many years have proved so serviceable, it aims, in the small compass of a single volume, to reflect and record the more noteworthy activities of the year under review. Manifestly, the Year Book, even with an increased staff of contributors, can deal but in outline with the many topics it seeks to cover, but the selected bibliographies accompanying many of the articles serve to indicate the manner and extent of the increase of human knowledge during the year. These bibliographies have proved so welcome a feature to librarians and others that the contributors to the Year Book have been encouraged to extend them.

In the 1927 Year Book there are certain new features which deserve special mention. For many years there has been carried an article, Financial Review. This has been retained in the 1927 Year Book, and in addition authoritative articles on Banks and Banking, Business Review, Public Finance, and Taxation have been added, which record the year's activity in these respective fields, and which are allied with present-day economic and political conditions. A distinctly timely special article on Investment Trusts has also been prepared, which undoubtedly will prove of service. In the field of Power Engineering a new contributor discusses advances in this branch of mechanical engineering, so closely allied with industrial developments.

As usual, articles on Literature, English and American; French Literature; German Literature; Philology, Modern; Scandinavian Literature, and Spanish Literature are available, and furnish an interesting and acceptable record of intellectual activity. For the first time there is presented an article on Spanish-American Literatures which affords a useful chronicle of the productive effort in literature in Central America and South America, a field too often ignored in the northern hemisphere, and one that the Year Book is glad to cultivate.

The League of Nations, with its meetings and the discussions it developed, continued in interest, and the record of the proceedings of its Council and committees shows important advances. The progress of Europe was marked everywhere by general improvement, particularly as evidenced under France, Germany, Poland, and Russia, while China continued in a more or less turbulent condition.

Each year the Year Book seeks to give the more important events and the commercial progress of the various countries on the American Continent. In addition to the outline of the history of the year, the more essential commercial statistics are presented, derived from such authoritative sources as the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce, the Dominion Statistician of Canada, the Bureau of Pan American Republics and other official agencies to which the Editor of the Year Book is pleased to express his indebtedness.

In 1927 the State articles assumed added importance, due to the fact that so many of their legislatures were in session. In their preparation the interest of many State officials has been generously manifested and unusual efforts have been made to secure accuracy in their compilation. Similar coöperation has been received from the headquarters' officials of the various churches and religious denominations and from the secretaries of universities and colleges. The same statement applies to the national and other societies from which information has been received and used in preparing the articles. Obviously, it is impossible to mention the names of so many kind friends to whom the YEAR BOOK is indebted in one way or another.

Unusual events of the year include such topics as the SACCO-VANZETTI CASE, in Massachusetts, which up to its very close held the attention of the entire world. The serious FLOODS in the Mississippi Valley and New England, with their vast destruction, receive special treatment at the hands of the contributor of METEOROLOGY. PROHIBITION, while no longer novel, continued a topic of prime interest and the YEAR BOOK article reflects the discussion not only in the United States, but in other countries. Under AËRONAUTICS are described the great transatlantic flight of Colonel Charles A. Lindbergh and other notable achievements of the year in this field. Important awards of NOBEL PRIZES were made in 1927. Science made its advances, as recorded under ANTHROPOLOGY, BOTANY, CHEMISTRY, GEOLOGY, MINERALOGY, PSYCHOLOGY, and ZOÖLOGY; while there were notable developments in Medicine and Surgery as well as in VETERINARY MEDICINE.

The obituary record of the year serves to emphasize the passing of important men and women of whom brief biographies are as usual included.

HERBERT TREADWELL WADE.

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KEY TO PRONUNCIATION

ā	as in ale, fate. Also see ĕ, below.
ǡ	" " senate, chaotic.
â	" " glare, care, and as *e* in there. See ĕ, below.
ă	" " am, at.
ä	" " arm, father.
ȧ	" " ant, and final *a* in America, armada, etc. In rapid speech this vowel readily becomes more or less obscured and like the neutral vowel or a short *u* (ŭ).
a	" " final, regal, where it is of a neutral or obscure quality.
a̤	" " all, fall.
ē	" " eve.
ė̄	" " elate, evade.
ĕ	" " end, pet. The characters *ĕ*, *ā*, and *â* are used for *ä*, *ae* in German, as in Baedeker, Gräfe, Händel, to the values of which they are the nearest English vowel sounds. The sound of Swedish *å* is also sometimes indicated by *ĕ*, sometimes by *â* or *ā*.
ẽ	" " fern, her, and as *i* in sir. Also for *ö*, *oe*, in German, as in Göthe, Goethe, Ortel, Oertel, and for *eu* and *oeu* in French, as in Neufchâtel, Crèvecœur; to which it is the nearest English vowel sound.
e	" " agency, judgment, where it is of a neutral or obscure quality.
ī	" " ice, quiet.
ī̇	" " quiescent.
ĭ	" " ill, fit.
ō	" " old, sober.
ȱ	" " obey, sobriety.
ô	" " orb, nor.
ŏ	" " odd, forest, not.
o	" " atom, carol, where it has a neutral or obscure quality.
oi	" " oil, boil, and for *eu* in German, as in Feuerbach.
o͞o	" " food, fool, and as *u* in rude, rule.
ou	" " house, mouse.
ū	" " use, mule.
ū̇	" " unite.
ŭ	" " cut, but.
ụ	" " full, put, or as *oo* in foot, book. Also for *ü* in German, as in München, Müller, and *u* in French, as in Buchez, Budó; to which it is the nearest English vowel sound.
û	" " urn, burn.
y	" " yet, yield.
B	" " the Spanish Habana, Córdoba, where it is like a *v* made with the lips alone, instead of with the teeth and lips.
ch	" chair, cheese.
D	as in the Spanish Almodovar, pulgada, where it is nearly like *th* in English then, this.
g	" " go, get.
G	" " the German Landtag, and *ch* in Feuerbach, buch; where it is a guttural sound made with the back part of the tongue raised toward the soft palate, as in the sound made in clearing the throat.
H	" *j* in the Spanish Jijona, *g* in the Spanish gila; where it is a fricative somewhat resembling the sound of *h* in English hue or *y* in yet, but stronger.
hw	" *wh* in which.
K	" *ch* in the German ich, Albrecht, and *g* in the German Arensberg, Mecklenburg; where it is a fricative sound made between the tongue and the hard palate toward which the tongue is raised. It resembles the sound of *h* in hue, or *y* in yet; or the sound made by beginning to pronounce a *k*, but not completing the stoppage of the breath. The character K is also used to indicate the rough aspirates or fricatives of some of the Oriental languages, as of *kh* in the word Khan.
n̲	" in sinker, longer.
ng	" " sing, long.
N	" " the French bon, Bourbon, and *m* in the French Étampes; where it is equivalent to a nasalizing of the preceding vowel. This effect is approximately produced by attempting to pronounce "onion" without touching the tip of the tongue to the roof of the mouth. The corresponding nasal of Portuguese is also indicated by N, as in the case of São Antão.
sh	" " shine, shut.
th	" " thrust, thin.
TH	" " then, this.
zh	" *z* in azure, and *s* in pleasure.

An apostrophe ['] is sometimes used to denote a glide or neutral connecting vowel, as in tā′b'l (table), kăz″m (chasm).

Otherwise than as noted above, the letters used in the respellings for pronunciation are to receive their ordinary English sounds.

When the pronunciation is sufficiently shown by indicating the accented syllables, this is done without respelling; as in the case of very common English words, and words which are so spelled as to insure their correct pronunciation if they are correctly accented. Pronunciation is discussed in the NEW INTERNATIONAL ENCYCLOPEDIA.

THE NEW INTERNATIONAL YEAR BOOK

ABBEMA, ab-bâ′mă, Louise. French painter, died at Paris, France, July 29. She was born at Étampes in 1855. Her work was first exhibited at the Salon in 1874, and later she executed decorative panels for various town halls, for the Hôtel de Ville in Paris, the Musée de l'Armée, the Theatre Sarah Bernhardt, the hall of the National Society of Horticulture of France, the Abbey of Fécamp, the Palace of the Governor of Dakar, and other buildings. She painted many portraits, including those of Sarah Bernhardt, of whom she was a lifelong friend, Ferdinand de Lesseps, and Dom Pedro, Emperor of Brazil. At the various exhibitions in Paris she received honorable mention and bronze and silver medals, and she was created a Chevalier of the Legion of Honor; she received, also, many other honors in France and Indo-China. She was vice-president of the Beaux Arts section of the French National Society of Horticulture.

ABBOT, Edwin Hale. American railroad attorney and official, died at Cambridge, Mass., May 30. He was born at Beverly, Mass., Jan. 26, 1834, and was educated at the Boston Latin School and at Harvard College, graduating at the latter institution in 1855 and receiving the degree of A.M. in 1858 and that of LL.B. in 1862. He practiced law in Boston from 1862 to 1870, when he moved to Milwaukee and became general solicitor and director of the Wisconsin Central R. R. In 1878 he became vice president and trustee of this road, taking possession of it as active trustee and operating it for the bondholders from 1878 to 1889. He constructed the Wisconsin Central associated lines and, with Charles L. Colby, built the Grand Central Station and terminals in Chicago. He was the originator of the voting trust method of corporate control, which he devised for the Wisconsin Central in 1879. From 1890 to 1899 he was president and treasurer of the Wisconsin Central, the Chicago, Wisconsin and Minneapolis, and Milwaukee and Lake Winnebago roads. In 1909 he retired from business, having brought about an amicable union of all the Wisconsin Central roads into one company, notwithstanding strong opposition. With W. W. Crapo he established the first car-ferry for entire trains across Lake Michigan between Manitowoc and Ludington, a distance of 54 miles. He was also director of the Atchison, Topeka and Santa Fé and the Northern Pacific, 1887–93. In 1905–06 he was active in life insurance reforms, serving as chairman of the Massachusetts Policy Holders' Committee. He contributed to various reviews and magazines, and lectured at many universities.

ABBOT, Henry Larcom. American soldier and engineer, died at Cambridge, Mass., October 2, being at the time of his death the oldest retired army officer and the oldest graduate of the U. S. Military Academy. He was born at Beverly, Mass., Aug. 13, 1831, and graduated at the U. S. Military Academy in 1854, entering the Corps of Engineers, in which organization he served until he retired from the Army in 1895. His first engineering work was done in connection with the survey of the Pacific Railroad and the hydrographic survey of the Mississippi River delta. During the Civil War he was actively engaged in engineering and artillery operations, his most important service being in command of the siege artillery in the operations around Richmond in 1864. He was wounded at Bull Run, in 1861. At the close of the war he was brevetted Major General of Volunteers, and returned to the regular army, being placed in command of the engineer post at Willetts Point, N. Y. While there he developed a torpedo and submarine defense of the Long Island Sound approach to New York City, and founded the school for engineers. Much of the work of developing submarine mines and mortar batteries, and the defense and fortifications of the United States, was carried on under his direction or by boards and commissions of which he was a member. In addition to military engineering he became active in civil engineering, particularly in hydrographic work. He was a member of the board, to devise a plan for the protection and reclamation of the Mississippi basin, and much of the levee work and the carrying out of plans for the protection of the neighboring land were done under his direction. He was also president of a board of consulting engineers which considered the proposed ship canal from Pittsburgh to Lake Erie, and he designed the harbor at Manitowoc, Wisconsin. After his retirement from the army he served on important engineering commissions, and in May, 1897, he was appointed a member of the technical committee of the New Panama Canal Company. He was elected a member of the National Academy of Sciences in 1872. He was the author of *Siege Artillery in the Campaign against Richmond* (1867); *Experiments and Investigations to Develop a System of Submarine Mines for Defending Harbors of the United States* (1881), and, with Gen. A.

A. Humphreys, *Physics and Hydraulics of the Mississippi;* he wrote, also, a large number of reports of military and engineering commissions and boards. Among his later writings may be mentioned *Problems of the Panama Canal* (1905–07).

ABERT, äb-ĕrt, HERMANN. German musicologist, died at Berlin, in September. He was born at Stuttgart, Mar. 25, 1871. He received his musical instruction from his father and at the conservatory of his native city. In 1902 he established himself as privatdozent at the University of Halle, becoming full professor in 1909. In 1919 he succeeded Riemann as professor of music at the University of Leipzig, and in 1923 was called to the University of Berlin as successor to Kretzschmar. His principal work is the monumental biography of *Mozart* (2 vols., 1920–21), begun originally as a revision of Jahn's book. Other works are *Schumann* (1903); *Mozarts Persönlichkeit* (1923) and several valuable monographs on early music.

ABORTION IN LIVESTOCK. See VETERINARY MEDICINE.

ABYSSINIA. See ETHIOPIA.

ACADEMY, FRENCH (ACADÉMIE FRANÇAISE). The oldest of the five academies which make up the Institute of France, and officially considered the highest; founded in 1635, reorganized in 1816. The list of the Immortals at the beginning of 1927 was as follows: Paul Bourget; Gabriel Hanotaux; Henri Lavedan; René Bazin; Maurice Donnay; Raymond Poincaré; Eugène Brieux; R. Doumic; Marcel Prévost; Henri de Régnier; Maréchal Lyautey; H. R. D. Cochin; Pierre de la Gorce; Henri Bergson; Maréchal Joffre; Louis Barthou; Monsignor Baudrillart; François de Curel; Jules Cambon; Georges Clemenceau; Maréchal Foch; H. Bordeaux; Robert de Flers; Joseph Bédier; André Chevrillon; Pierre de Nolhac; Georges Goyau; Georges de Porto-Riche; Edouard Estaunié; Maître Henri Robert; Charles Jonnart; Abbé Bremond; Georges Lecomte; Emil Picard; Albert Besnard; Paul Valery; Auguste Armand Ghislain Marie Joseph Nomphar de Caumont; Duke de la Force; and Louis Bertrand.

During the year the Marquis de Flers (q.v.) a member of the Academy, died, while two members were elected to take the places of Jean Richepin and René Boylesve-Tardiveau who died in 1926. The new Immortals were M. Abel Hermant, an author and playwright, and M. Emile Male, director of the French School at Rome. Monsieur Hermant was born at Paris, Feb. 3, 1862, and was educated at the Lycée Bonaparte, Condorcet, receiving the degree of Licencié ès lettres. He was president of the Société des Gens de Lettres in 1902, and a member of the Société des Auteurs et Compositeurs Dramatiques. He was well known as a writer of novels and plays and as a journalist, contributing weekly articles concerning Parisian matters to the *Temps*, and as a grammatical purist, as shown in his *Entretiens sur la Grammaire Française* (1923). His best known novels are: *Le Cavalier Miserey* (1887); *Serge; Les Confidences d'une Aïeule* (1893); *La Carrière; Les Transatlantiques* (1897); *La Meute; Souvenirs du Vicomte Courpière* (1901); *Les Grands Bourgeois; La Discorde;* and *Heures de Guerre de la Famille Valadier*. His play, *La Meute*, taken from his novel of the same name, not only was successful when produced at the Théâtre de la Renaissance in 1896, but brought on a duel between its author and the Prince de Sagan. His play, *Les Transatlantiques*, written in 1897, satirizes both Americans and French with much humor.

Monsieur Emile Male was born in Commentry in the Allier in 1862, and was educated at the Lycées de Saint-Étienne, Louis-le-Grand, and was a former pupil of l'École Normale Supérieure. He devoted himself to questions of art, particularly religious art, and his work *L'Art Religieux au Treizième Siècle*, written in 1898 as a thesis for a doctorate, was crowned by the Académie des Inscriptions et Belles Lettres. He was professor of medieval art at the Sorbonne for several years, and a member of the Société des Antiquaires de France. In addition to the work cited he was the author of: *L'Art religieux à la fin du moyen âge* (1908); *L'Art allemand et l'art français du moyen âge* (1917); *and L'Art religieux du XII^e siècle en France* (1922).

The daily press stated that among the candidates for the two seats who failed to secure the requisite number of votes were Professor Richet of the Sorbonne, Claude Farrère, and the Comte de Blois.

Announcement was made towards the end of the year of the election to the Academy of Louis Madelin, a French historian and man of letters, succeeding the late Robert de Flers (q.v.). Émile Marie Louis Madelin was born May 8, 1871, and was educated at the Collège Fénelon, Bar-le-Duc, France; the University of Nancy, and l'École de Chartes. He became a fellow of the university and a doctor of letters, and was formerly connected with the French school in Rome. In 1907–8 he lectured, as a representative of the Alliance Française, in the United States and Canada. He was elected vice president of the Société des Gens de Lettres in 1919. M. Madelon saw active service during the War, and received the Croix de Guerre and election as a Chevalier of the Legion of Honor. He wrote: *Fouché* (1901), which received a prize from the French Academy; *La Rome de Napoléon* (1903), second Gobert prize of the Academy; *Croquis Lorrains* (1905); *La Révolution* (1910), grand prize Gobert; *France et Rome* (1911); *Danton* (1912); *La Bataille de France* (1919); *Les Heures Merveilleuses d'Alsace et de Lorraine* (1920); *Le Chemin de la Victoire* (1921); *L'Expansion Française* (1921).

ACADEMY OF ARTS AND LETTERS, AMERICAN. A society founded in 1904 by members of the National Institute of Arts and Letters, and incorporated and given a charter by Act of Congress approved April 17, 1916. The purposes of the organization are the furtherance of the interests of literature and the fine arts. The membership, limited to 50 chairs, is similar to that of the French Academy, and vacancies caused by death are filled by election by the members from the National Institute on the basis of lifetime achievement in literature, painting, sculpture, architecture, and music. At the annual meeting on Nov. 10, 1927, four new members were elected: John Russell Pope, Edwin Arlington Robinson, James Earle Fraser and John Huston Finley, to fill the vacancies caused by the deaths of: John Singer Sargent, who died Apr. 15, 1925; Stuart P. Sherman, who died Aug. 21, 1926; James Ford Rhodes, who died Jan. 22, 1927; and Albert J. Beveridge, who died Apr. 27, 1927. In addition to the four named, the membership in 1927 included the following in order of election: Daniel Chester French; William Milligan Sloane; Robert Underwood Johnson; Henry van Dyke; William Crary Brownell; Arthur Twining Hadley; Edwin Howland Blashfield; Thomas Hastings; Brander Matthews; George Edward Woodberry; George Whitefield Chadwick; George de Forest Brush; William Rutherford Mead; Bliss Perry; Abbott Lawrence Lowell; Nicholas Murray Butler; Owen Wister; Herbert Adams; Augustus Thomas; Timothy Cole; Cass Gilbert; Robert Grant; Frederick MacMonnies; William Gillette; Paul Elmer More; Gari Melchers; Elihu Root; Brand Whitlock; Hamlin Garland; Paul Shorey; Charles Adams Platt; Archer Milton Huntington; Childe Hassam; David Jayne Hill; Lorado Taft; Booth Tarkington; Charles Dana Gibson; John Charles Van Dyke; Royal Cortissoz; Henry Hadley; Charles Downer Hazen; George Pierce Baker; Edwin Anderson Alderman; Edward Channing; Wilbur L. Cross; and Hermon A. MacNeil.

At a public meeting held on April 21, 1927, the Academy presented to Miss Edith Wynne Matthison its gold medal for good diction on the stage, which had been awarded by a ballot of the Academy.

The Directors of the Academy in 1927 were: President, William Milligan Sloane; Chancellor, Nicholas Murray Butler; Secretary, Robert Underwood Johnson; Treasurer, Thomas Hastings; Wilbur L. Cross, Hamlin Garland, Cass Gilbert, Archer Milton Huntington, and Augustus Thomas. The Academy has headquarters in its building at 633 West 155th Street, New York.

ACADEMY OF INTERNATIONAL LAW. See INTERNATIONAL LAW.

ACADEMY OF SCIENCES. See NATIONAL ACADEMY OF SCIENCES.

ACCIDENTS. See RAILWAY ACCIDENTS; SAFETY AT SEA.

ACKERT, CHARLES H. American railway official, died at Chicago, Ill., June 5. He was born in Dutchess County, N. Y., Feb. 19, 1856. Entering the railway service in 1872 as a telegraph operator, in 1888 he became general manager of the Iowa Central Ry. In 1893 he was appointed general manager of the Elgin, Joliet & Eastern Ry., succeeding in 1899 to the presidency of the company, and also of the Chicago, Lake Shore and Eastern Ry. In 1901 he became general manager of the Mobile and Ohio, and on March 15, 1902, he was appointed general manager of the Southern Ry. Three years later he was elected fourth vice president of the Southern, resigning to become vice president of the Chicago and Alton in 1909. He retired from active railway service in 1917, when he became president of the National Railway Time Service Company of Chicago.

ACOUSTICS. See PHYSICS.

ADAMS, BROOKS. American author and lawyer, died at Boston, Mass., February 13. He was born at Quincy, Mass., June 24, 1848, the son of Charles Francis and Abigail Brown (Brooks) Adams, and graduated from Harvard College in 1870. After a year at the Harvard Law School he went to Geneva as secretary to his father, when the latter was a member of the Alabama Claims Arbitration Commission. He was admitted to the bar of Massachusetts in 1873, and engaged in active practice at Boston until 1881. He served as lecturer in the Boston University School of Law from 1904–11, and was a delegate to the Massachusetts State Constitutional Convention in 1917. His more notable writings include: *The Emancipation of Massachusetts* (1887); *The Law of Civilization and Decay* (1896) (translated into French and German); *America's Economic Supremacy* (1900) (translated into German); *The New Empire* (1902) (translated into German and Russian); two chapters in *Centralization and the Law* (1905); *Railways as Public Agents* (1910); *The Theory of Social Revolutions* (1913); and *Emancipation of Massachusetts—The Dream and the Reality* (1919).

ADAMS, EDWIN AUGUSTUS. American clergyman and former pastor of the Bethlehem Congregational Church of Chicago, died at Walpole, Mass., April 10. He was born at Franklin, Mass., Oct. 21, 1837, and graduated at Amherst College in 1861, later studying at Union College and at Andover Theological Seminary. His first pastorate was at North Manchester, Conn. where he was from 1868 to 1872, and from 1873 to 1882 he served as a missionary at Prague, in Bohemia, now Czechoslovakia. He became pastor of the Bethlehem Congregational Church in Chicago, serving for thirty-four years, when he retired to his home at Walpole. He was the father of six distinguished children, Prof. Edwin P. Adams of Princeton, Prof. George P. Adams of the University of California, Prof. Kathryn Adams, President of Constantinople College for Women, Prof. Elizabeth Adams of Olivet College, Mrs. E. H. Harper, and Miss Rebecca B. Adams.

ADELBERT COLLEGE. See WESTERN RESERVE UNIVERSITY.

ADELPHI COLLEGE. A non-sectarian college of arts and sciences for women, at Brooklyn, N. Y.; incorporated in 1896. In the autumn of 1927 there were 600 students in the regular courses leading to the A.B. degree, distributed as follows: Seniors, 128; juniors, 142; sophomores, 161; freshmen, 169. The summer school registration was 112. The faculty numbered 41, the following additions having been made: One assistant professor each in biology, economics and sociology, education, an instructor in French, and an instructor in English and Latin. The income for the year was $187,577.34. The library contained over 18,000 volumes. President, Frank Dickinson Blodgett, A.M., LL.D.

ADEN, ä'den *or* ā'den. A volcanic peninsula on the Arabian coast belonging to Great Britain; about 100 miles east of Bab-el-Mandeb. Area, 75 square miles; including the protectorate, about 9000 square miles. The settlement comprises also the peninsula of Little Aden, and some villages on the mainland, and the island of Perim, the last named having an area of 5 square miles. In 1921 the population of Aden and Perim was 54,923, of whom 80 per cent were Mohammedans. The population of the protectorate was about 100,000. The manufactures, which are unimportant, consist chiefly of salt and cigarettes.

Aden is the principal commercial centre of the Arabian peninsula and the entrepôt for the Red Sea markets of Ethiopia, Eritrea, and Somaliland. It possesses great importance as a fueling station owing to its position halfway between Europe and the Orient and to its low prices for fuel, oil being imported free of duty and coal obtained cheaply from South Africa. The imports for the 1925–26 period amounted to $32,032,000 and the exports to $26,756,000. A large amount of this commerce represents transhipped goods. The chief imports are cotton piece goods, grain, coal, coffee, sugar, hides and skins, tobacco, fruit, vegetables, and other provisions; and among the chief exports, coffee, gums, hides and skins, cotton goods, tobacco, grain, sugar, and provisions. In 1925–26, 1315 merchant vessels of 4,356,326 tons entered the port of Aden; 678 of these were British.

Attached to Aden are the Kuria Muria islands off the Arabian coast, five in number, ceded by the Sultan of Muskat. Aden is under a British political resident with four assistants, the British Colonial Office having charge of all political questions and the British War Office of military questions. Beginning with Apr. 1, 1927, the Government of India, which has charge of the internal administration of the settlement, was to contribute a fixed sum of £250,000 a year for three years towards the military and political charges, and thenceforward one-third of these charges, subject to a maximum of £150,000 a year. Political resident and general officer commanding in 1927, Maj.-Gen. J. H. K. Stewart.

ADULT EDUCATION, American Association for. An organization formed in 1926 to serve as a source of information concerning adult education activities, and particularly to act as a clearing house through which the experience and findings of each adult education enterprise may be made available to others. The Association seeks, also, to advise those who are already engaged in adult education, to aid those who are planning to initiate such work, to publish and secure the publication of material useful to those in the field, and to assist in studies of problems fundamental to adult education.

It is the Association's view that adult education should count in its enrollment those men and women, young and old, who are pursuing some kind of education after working hours, either by correspondence, under public library guidance, or in university extension classes, workers' classes, folk schools, institutes or museum classes. In such institutions new theories and practices of education are being worked out with their own problems, methods and literature. Studies of adult education, published by the Association, approached the subject from two angles. First, came the reports of surveys, covering five great divisions of adult education, which were made under the auspices of the Carnegie Corporation of New York. The volumes issued were: *Libraries and Adult Education*, American Library Association; *New Schools for Older Students*, Nathaniel Peffer; *Educational Opportunities for Young Workers*, Owen D. Evans; *The University Afield*, Alfred L. Hall-Quest; *Correspondence Schools, Lyceums, Chautauquas*, John S. Noffsinger. Second, were cross-section studies of the varied adult education facilities in such selected communities as Buffalo, Cleveland, Chicago, and Detroit. The report of the survey of Buffalo had already been printed and others were in course of preparation at the close of the year. The Association published an occasional *Journal*, which it hoped in time to expand into a quarterly or monthly periodical. Up to the end of 1927 it had held two national conferences with a numerous attendance of educators. It is affiliated with the World Association for Adult Education.

The Association conducted four teacher-training courses at the New School for Social Research, New York, during the winter of 1926–27, where teachers learned how to humanize their knowledge, in accordance with the principle that one of the primary needs in adult education is a corps of teachers whose scholarship measures up to the highest academic standards, and who are also capable of working out new methods by which they can present their subjects in vivid, unacademic form. Membership in the Association is open to individuals or groups interested in adult education. It depends for its financial support upon dues from members, and upon the interest of private individuals and of educational foundations. The officers of the Association in 1927 were: President, Dean James E. Russell, of Teachers College, Columbia University; vice-president, Prof. Leon J. Richardson, University of California; treasurer, J. H. Puelicher, American Bankers' Association, Milwaukee; secretary, Miss Margaret Burton, National Board of the Young Women's Christian Association, New York; executive director, Morse A. Cartwright, New York. The foregoing with fourteen other members composed the executive board of the Association. National headquarters are at 41 East 42nd Street, New York.

ADVANCEMENT OF SCIENCE. American Association for the. Founded in 1848 to advance science, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. In 1927 its membership included over 15,000 individuals interested in the advancement of science and the progress of knowledge and education, 116 autonomous and independent associated scientific societies, of which 85 were officially affiliated with the Association, 23 being local academies of science. The direction of the association rests in a council consisting of the officers, representatives of the affiliated societies and academies, and eight members elected at large by the council. It holds an annual meeting at the same time as the association and operates in the interim through an executive committee. The activities of the association are of three kinds: Those related to the holding of the annual and other meetings; those related to publications; and those related to the advance of knowledge by research. It has 15 sections representing the main current subdivisions of science, as follows: Mathematics, physics, chemistry, astronomy, psychology, social and economic sciences, historical and philological sciences, anthropology, geology, zoölogical sciences, botanical sciences, engineering, medical science, agriculture, and education.

The official organ of the association is a weekly journal, *Science*, which furnishes an open forum for the discussion of questions regarding science and education, almost every branch of scientific knowledge being represented in its columns. In addition the association issues an elaborate programme for each annual meeting, and it publishes at four-year intervals a volume of summarized *Proceedings*, including a directory of members. The permanent endowment of the Association, the income from which is employed to advance scientific research, amounted in 1927 to $142,476.66; grants are made annually to individuals or scientific organizations to promote research. Two regional divisions are conducted by the Association: The Pacific Division, including the Pacific States, Alaska, the Philippines, and the Hawaiian Islands, and the Southwestern Division, including Arizona, New Mexico, Colorado, western Texas, and northern Mexico. These divisions are autonomous, holding annual and other meetings and engaging in other projects in their respective fields.

The eighty-fourth meeting of the Association convened in Nashville, Tenn., Dec. 26 to 31, 1927, with an attendance of 1662, this being one of the smaller meetings. Twenty-nine associated societies met with the Association and 163 sessions were held, at which 1191 papers and addresses were read. The science exhibition was well developed, with exhibits by commercial firms as well as by individual research workers and research institutions and laboratories. Dr. Arthur A. Noyes, eminent chemist, of the California Institute of Technology, was president at this meeting.

The annual Association prize of $1000 was awarded to Dr. H. J. Muller of the University of Texas for his outstanding contribution to our knowledge of the influence of X-rays on inheritance. The standing committee of the Association on the place of the sciences in education, with Dr. Otis W. Caldwell of Columbia University as chairman, was making a survey of this subject. There was also a committee of 100 on general scientific research, the secretary of which was Dr. Rodney H. True of the University of Pennsylvania. The permanent secretary of the Association is Dr. Burton E. Livingston of Johns Hopkins University, from whom information regarding the organization may be secured by addressing him at the headquarters of the Association, Smithsonian Institution Building, Washington, D. C. The president of the Association elected for 1928 was Henry Fairfield Osborn, president of the American Museum of Natural History. It was decided to hold the 1928 meeting from Dec. 27, 1928 to January 2, 1929, at New York City.

ADVANCEMENT OF SCIENCE, Associations for. The American Association for the Advancement of Science (q.v.) held its 1927–28 meeting in Nashville, Tenn., Dec. 26–31, 1927. The Pacific Division met at Reno, Nev., June 22–24, 1927, and the Southwestern Division met at Santa Fe, New Mexico, Apr. 12–14, 1927. The British Association for the Advancement of Science (q.v.) met at Leeds, Aug. 31–Sept. 7, 1927. The Indian Scientific Congress met at Lahore, India, January 3–8, and the South African Association for the Advancement of Science met at Salisbury, Rhodesia, June 29–July 4; the French Association for the Advancement of Science at Lyons, France, July 24–August 1; and the meeting of the Australasian Association at Hobart, Tasmania, was set for Jan. 6–20, 1928.

ADVENT CHRISTIANS. See Adventists.

ADVENTISTS. The Advent Movement had its origin in America with William Miller, who believed not only in the coming of Christ in person, power and glory, but that such an advent was at hand and that the date might be fixed with some definiteness. The movement, however, began in England and on the Continent, under the leadership of the Rev. Hugh McNeile and the Rev. Edward Irving, in England, and the Rev. Joseph Wolfe, D.D., LL.D., in Prussia. A Prophetic Conference was held at Albury Park in 1836, at the residence of Henry Drummond, Esq., afterwards a member of the British Parliament, with "eight days of serious study of the prophecies," at which the Rev. Hugh McNeile presided. The first general gathering in America of those interested took place in Boston, October, 1840, the movement at that time being wholly within the existing churches, but in April, 1845, a conference was held at Albany, N. Y., at which the adherents of the Adventist doctrine were organized and a declaration of principles was adopted, embodying the views of Mr. Miller. For the next ten years this organization included practically all the Adventists, but gradually separate bodies developed, beginning with the Advent Christian Church, in 1855, and including the Seventh-Day Adventists, organized in 1860; Life and Advent Union, in 1864; The Church of God (Adventists), in 1866; and The Churches of God and Christ Jesus, in 1888.

Advent Christian Church. This church, which is congregational in church government, holds simply to the general immanence of Christ's return but takes the position that the day cannot be determined. It holds a biennial general conference, the meeting in 1928 to be at Dowling Park, Florida, June 17–24. Statistics of 1925, covering 46 conferences, showed 537 churches; 528 ordained ministers; 137 licensed ministers; 28,297 church members; 289 Sunday schools; 15,435 Sunday school members; 138 Young People's Societies of Loyal Workers, with 4758 members. Sixteen conferences are not included in these totals. The denomination maintains four publication societies and two educational institutions, Aurora College at Aurora, Ill., and the New England School of Theology in Boston. Periodicals published include the *World's Crisis* (Boston), *Messiah's Advocate* (Oakland), *Our Hope* (Mendota, Ill.), and *Present Truth Messenger* (Live Oak, Fla.). Among the philanthropic institutions of the denomination are the American Advent Christian Home and Orphanage at Dowling Park, Fla., and the Vernon Home for ministers and missionaries at South Vernon, Mass. The Rev. J. William Denton was general director in charge of the headquarters at 160 Warren Street, Boston 19, Mass.

Seventh-Day Adventists. In 1926 this was the largest denomination of the Adventist group and embraced 12 union conferences in the United States and Canada. This denomination believes that the seventh day of the week, from sunset on Friday to sunset on Saturday, is the Sabbath established by God's law and that immersion is the only proper form of baptism. The local church is congregational in government, though under the general supervision of the conference. The statistical report of the denomination for 1926 indicated 2240 churches in the North American Division, 848 ordained ministers and 110,422 church members. Sabbath schools numbered 2734 and the membership 119,005. Figures for the foreign division were 3622 churches, 869 ordained ministers, 151,412 church members, 5542 Sabbath schools, with an enrollment of 192,013. The movement maintained in the United States and Canada 57 educational institutions, which in 1926 had 12,314 students enrolled. Of the colleges and seminaries, Loma Linda Medical College, Calif., and Pacific Union College, St. Helena, Calif., were the largest. There were also 64 educational institutions maintained in foreign countries. The denomination had 18 publishing houses in North America, and 38 in foreign countries. Denominational literature was issued in 131 languages, and evangelistic work was conducted in 126 countries. Periodicals of the movement included: *Advent Review and Sabbath Herald* (Washington); *Signs of the Times* (Mountain View, Calif.); and *Watchman* (Nashville, Tenn.).

AËRONAUTICS. The year 1927 was noteworthy not merely for the further extension of aërial navigation, but also for additional demonstrations of the capabilities of aircraft. A number of interesting flights, of which those of Charles A. Lindbergh stood out preëminent, indicated that further advances were being made towards long distance and intercontinental communication. Throughout the world airways and air mail service were extended and the year witnessed a remarkable advance in the amount of commercial traffic, and particularly in the extension of air mail. Both in Europe and in America there was a marked development in the construction of municipal airports and the illumination by the government of airways. On July 1, 1927, the United States air mail service passed from the control of the government and was undertaken by private companies under contract. Some of the more notable events of the year are summarized in the following paragraphs.

BALLOONS

NATIONAL BALLOON RACE. The National Balloon Race, at which were selected the United States representatives in the International Gordon Bennett Balloon Race, was started from Akron, Ohio, on the afternoon of Memorial Day, May 30. For the third time Ward T. VanOrman was the winner, thus becoming the permanent holder of the Litchfield Cup. With W. W. Morton as aide in the balloon *Goodyear V* he accomplished a distance of 718 miles, landing on a sandy beach near Bar Harbor, Maine. Second place in this competition went to E. J. Hill with A. G. Schlosser as aide in the Detroit Flying Club balloon, *Detroit III*, which landed at Skowhegan, Maine, a distance of 650 miles; and third place went to the United States Army Air Corps balloon *S-261* from Scott Field, Illinois, and piloted by Captain W. E. Kepner, U. S. A., with Lieutenant W. O. Eareckson, U. S. A., which landed at Biddeford, Me., flying 595 miles. There were 15 entries in the race including four army, three navy and eight civilian balloons, and according to the terms of the competition the balloons were limited to 35,000 cu. ft. capacity. The competition was in every way successful and the official standing of the contestants was as follows:

NATIONAL BALLOON RACE SUMMARY

Name of Pilot and Aide	*Entrant*	*Name of Balloon*	*Distance in miles*
1. W. T. VanOrman W. W. Morton	Goodyear Tire & Rubber Co., Akron, Ohio	*Goodyear V*	718
2. E. J. Hill A. G. Schlosser	Detroit Flying Club, Detroit, Mich.	*Detroit III*	650
3. Capt. W. E. Kepner Lt W. O. Eareckson, U. S. A.	U. S. Army Air Corps, Scott Field, Ill.	*S-261*	595
4. J. A. Boettner J. F. Cooper	Scripps-Howard Newspapers, Ohio League		562
5. S. A. U. Rasmussen W. A. Klikoff	Detroit Flying Club, Detroit, Mich.	*Detroit II*	546
6 Lt. J. A. Powell Maj. M. R. Smith	U. S. Army Air Corps, Scott Field, Ill.	*S-262*	456
7. Lt. Paul Evert Lt. R. R. Gillespie	U. S. Army Corps, Langley Field, Va.	*S-265*	412
8. Lt. T. G. W. Settle Geo. W. Steelman	U. S. Navy, Lakehurst, N. J.	*S-97*	393
9. H. E. Honeywell R. H. Tait, Jr.	St. Louis Rotary Club, St. Louis, Mo.		384
10. Lt. Frank McKee Capt. S. T. Moore	U. S. Army Air Corps, Norton Field, Ohio	*S-248*	362
11. C. D. Williams, Jr. G M. LeGallee	Detroit Flying Club, Detroit, Mich.	*Detroit I*	352
12. R. P. Lehr C. H. Roth	"Davey Tree" Expert Co., Kent, Ohio		320
13. C. K. Wollam Howard Wolf	Akron Beacon Journal, Akron, Ohio		315
14. Lt. Chas. Bauch Lt. F. R. Riechelderfer	U. S. Navy, Lakehurst, N. J.	*S-98*	294
15. Lt. G. V. Whittle Franklin Masters	U. S. Navy, Lakehurst, N. J.	*S-5861*	176

GORDON BENNETT BALLOON RACE. The International Gordon Bennett Balloon Race was started from the Ford Airport near Dearborn, Mich., September 10, and attracted a field of 15 starters, Germany being represented for the first time since the World War. The competition was won by the American balloon, *Detroit III*, piloted by E. J. Hill and A. G. Schlosser as aide, which landed at Baxley, Ga., a distance of 745 miles, after a flight of 47 hours, 55 minutes duration. Second place was taken by the German balloon, *Barmen*, as will appear from the accompanying table; and third, by the American balloon, *Goodyear*, with 688 and 685 miles' distance respectively. This was the sixth victory for the United States in this competition, Belgium being second with five victories. Should the United States win the trophy again in 1928, it would become the permanent property of the country. The 1927 race while not achieving the distance of previous competitions was in every way successful; at the take-off the wind was due east, but storms being encountered it was necessary to fly to the south and most of the bags landed in Georgia or South Carolina. The essential items of the competition are given in the table on the following page.

INTERNATIONAL GORDON BENNETT BALLOON RACE, FROM FORD AIRPORT, NEAR DEARBORN, MICHIGAN, SEPTEMBER 10, 1927

No.	*Balloon*	*Country*	*Pilot and Aide*	*Landing*	*Duration hrs. min.*	*Distance*[a] *miles*
1.	*Detroit*	United States	E. J. Hill A. G. Schlosser	Baxley, Ga.	47.55	745
2.	*Barmen*	Germany	Hugo Kaulen Alexander Dahl	4 mi. SW of Ft. Valley, Ga.	48.15	688
3.	*Goodyear*	United States	W. T. VanOrman W. W. Morton	¾ mi. north of Adrian, Ga.	50.53	685
4.	*Lafayette*	France	Georges Blanchet Dr. Geo. M. LeGalle	2½ mi. east of Waverley Hall, Ga.	49.00	678
5.	*Hispania*	Spain	Enrique Maldonado B. Molas	3 mi. east of Eutawville, S. C	41.30	645
6.	*Belgica*	Belgium	Ernest Demuyter M. DeSoete	13. mi. NW of Florence, S. C.	32.15	600
7.	*Münster*	Germany	Ferdinand Eimermacher Dr. Rudolph Predeek	Prosperity, S. C.	47.40	575
8.	*Duc*	Italy	Domenico Leone Ugo Medori	5 mi. south of Whitmire, S. C.	30.25	570
9.	*Paris-Bruxelles*	France	Maurice Bienaimé A. Veenstra	7 mi. south of Dunn, S. C.	25.20	552
10.	*U. S. Army*	United States	W. E. Kepner Wm. O. Eareckson	York, S. C.	25.45	530
11.	*Wallonie*	Belgium	P. Quersin M. Theis	5 mi. SE of Greenville, S. C.	26 45	530
12.	*Rex*	Italy	Eraldo Ilari Giuseppe Paonessa	5 mi. south of Mooresboro, N. C.	25.20	500
13.	*Helvetia III*	Switzerland	Ernest L. Maag	16 mi. NW of Statesville, N. C.	21 45	465
14.	*Bee*	England	George E. Meager R. S. Booth	5 mi. NE of Clover, Va.	21.20	450
15.	*Ernst Brandenburg*	Germany	Dr. A. Halben Hugo Kaulen, Jr.	Sugar Island, Put-in-bay, Ohio	4.15	50

[a] Distance scaled by U. S. Geological Survey.

RECORDS. In connection with the competition for balloons several world's records were made in the United States during the year. For balloons of the third category, of the Fédération Aëronautique Internationale, namely with 901 to 1200 cubic meters capacity, E. J. Hill and A. G. Schlosser of the United States made a record for duration of 26 hours and 46 minutes in their flight from the Ford Airport to Montvale, Va. on July 4 and 5. In the same competition S. A. N. Rasmussen flying to Hookerton, N. C., made a distance record of 920.5 kilometers (572 miles). These two records were world's records as well as for America. They also held in the fourth category, namely for balloons for 1201–1600 cubic meters. In the fifth category of balloons of 1601–2200 cubic meters capacity, a world's duration record was made in the Gordon Bennett race by Georges Blanchet and Dr. George M. LeGalle, flying from Detroit to Waverly Hall, Ga., September 10 and 12, in 49 hours. In this same competition Hill and Schlosser, flying from Detroit to Baxley, made an American record of 47 hours and 55 minutes. However, Hill and Schlosser were able to make a world's record for distance of 1198.9 kilometers or 745 miles. In the sixth category which included balloons from 2201–3000 cubic meters the same records prevailed; while for altitude Captain Hawthorne C. Gray, U. S. A., who died later in the year, at Scott Field, Belleville, Ill., made a world's record of 8690 meters or 28,510 feet. These records also prevailed for the seventh category including balloons of 3001–4000 cubic meters, and the eighth category of balloons of 4001–5000 cubic meters.

On November 4, Captain Hawthorne C. Gray, U. S. A. Air Corps, reached a height of 42,470 feet, ascending in a free balloon at Scott Field, Belleville, Ill. While this was a height greater than any previously attained, it resulted fatally for Captain Gray, as he was found dead in the basket of his balloon in the trees near Sparta, Tenn. The oxygen tube was cut by a knife, and it was the decision of the official court of inquiry that while endeavoring to cut away surplus equipment so as to reach a higher altitude Captain Gray accidentally cut the tube. Later in the month the U. S. Bureau of Standards reported to the War Department that the calibration of the barograph carried in Captain Gray's balloon indicated that a height of 42,470 feet had been reached. This was the same height as was reached by Captain Gray on May 4, but in this ascent, as his balloon was descending too rapidly, he was forced to jump at 8000 feet, and consequently his record was not recognized by the Fédération Aëronautique Internationale. Previously on March 9, at Scott Field, Captain Gray had made an altitude record of 8690 meters (28,510 feet).

AIRSHIPS

During the year there were under construction in several countries large airships for commercial use and it was apparent that still further trials were to be made in this form of aërial navigation notwithstanding the previous mishaps and the opinion held in some quarters that the large dirigible could not be operated with the economy and safety required in commercial use. At Friedrichshafen, the German Zeppelin works were engaged in the construction of a large new craft known as the *LZ-127*, which was designed for experimental work in connection with the proposed German trans-Atlantic airship service. It was stated that the cubic capacity of this new Zeppelin was to be about 3,750,000 cubic feet as compared with 2,500,000 cubic feet for its predecessor the *LZ-126* built for the United States and incorporated in its navy as the *Los Angeles*. Its capacity would be somewhat less than the 5,000,000 cubic feet of the *R-100*, described below. The *LZ-127* was stated to be 775 feet in length, 100 feet at its greatest diameter, 110 feet in height, and would afford accommodation for 80 passengers and carry a crew of 26.

This notable airship was designed by Dr. Hugo Eckner, the head of the company. The work on this ship had been seriously restricted through the limitations imposed by the Versailles Treaty, but in 1926 the Allied Commission had broadened these restrictions so that the plant was able to undertake new work and endeavor to regain its former preëminence in lighter-than-air construction. While no details for the new Zeppelin under construction in 1927 were announced, nevertheless there were many innovations, some of which it was believed might change the entire trend of airship design. The fuel to be used was a gas not greatly different from ordinary illuminating gas carried in gas cells placed below the ordinary hydrogen cells and used in the engines in place of liquid gasoline. Having the same specific gravity as air, this fuel gas would permit long trips to be made with little change in the weight of the fuel, whereas with gasoline the load is very heavy at the start and diminishes gradually during the voyage. The composition of this new gas was stated to be mainly althylen which was lighter than air and ordinarily would be a satisfactory gas for an internal combustion motor. This gas, however, was lighter than air and to overcome this there was said to be added an admixture of a small proportion of another fuel gas of heavier weight, probably butane or one of its numerous derivatives. Tests were in progress during the year to define the suitable proportion for the mixture, but it was believed that 90 per cent of althylen and about 10 per cent butane would be employed.

It was stated later in the year that Dr. Eckner planned to encircle the globe on a non-stop flight with the new Zeppelin. He planned his first long flight to the United States, proceeding without stopping to San Diego, and later to put the ship into commercial service between Europe and South America. Should the new Zeppelin prove the success anticipated it was probable that new airships would be constructed for trans-Atlantic service. Naturally, improvements in metallurgy and design had made possible changes in the gas powered airship. The Zeppelin's standard type of girder was improved and simplified while a new longitudinal girder was introduced dividing the interior of the ship into the upper and lower gas cells. The power of the new Zeppelin was to be increased by using engines of greater power and of a type permitted under the amended Treaty restrictions.

BRITISH EMPIRE AIRSHIPS. At the end of the year the *R-100*, the first of two airships of 5,000,000 cubic feet capacity ordered for British Empire use under construction at East Howden, had reached a point where its completion by the following April was anticipated. This ship was being built to a contract for £350,000 by the Airship Guarantee Company, and like a sister ship under construction at the Royal Airship Works at Cardington, was designed for a gross lift of 150 tons, a structure weight not exceeding 90 tons, and a speed of 70 miles an hour. In regard to these items it was claimed that the specifications actually had been improved upon so that a gross lift of 156 tons, a structure weight of only 83 tons, and top speed of 83 miles an hour, and a cruising speed of 75 miles an hour for 4500 miles in still air was secured with a full load of 100 passengers and their supplies. It was claimed by the designers that the factors of safety secured in the new airship were double those required by the Committee on Airworthiness, and wind conditions in excess of any reasonably to be anticipated had been provided for. The *R-100* was constructed of duralumin, 709 feet in length with the greatest diameter of 130 feet and a transverse frame so spaced that no one gasbag between the frames would take more than 10 per cent of the total lift. Each of the gas bags, the largest of which have a capacity of 500,000 cubic feet, was enclosed in a net and anchored to a framework so as to prevent any bending strains being put upon the girders. In the bow where the mooring strains were centred the girders were uniform and reinforced, and at the centre the principal stresses to be met due to hogging are arranged with the lower girders stronger to resist compression than the upper girders. The passenger unit is suspended from the ship, not resting on any girder or frame and consists of two and four berth cabins, lounge, dining rooms, verandas, etc.; while there are three engine nacelles and the commander's control cabin, the latter being sunk through the underside of the vessel amidships. The engines are six Rolls-Royce Condor units of 700 horse power each and would use gasoline as fuel as the new engines designed to burn hydrogen and kerosene or crude oil were not to be available on the completion of the ship. It was believed that the *R-100* could make the trip from London to New York in 48 hours and operate profitably at an average fare of £100 per passenger. The ship was estimated to cost about £450,000.

U. S. NAVY AIRSHIPS. In the United States, the large airship *Los Angeles* was still in use, and under further tests and experiments to develop further information to be used in the construction of the new United States airships which had been provided for in the aviation programme of the previous year. The problems of landing and entering sheds were better understood, and the design for the 6,000,000-cu. ft. dirigibles was developed and preparations were being made to award contracts for one or both of the ships authorized by Congress. Proposals had been received for the construction of the hangar in which the new airships were to be built.

NOTABLE FLIGHTS

During the year 1927 a large number of notable flights were made under varying circumstances which served to demonstrate not only the progress in the development of aircraft, but also to indicate more than ever the possibility of long-distance communication. A number of these flights were remarkable not only for the distance traveled, but also for demonstrating international good-will and the ease with which communication could be maintained between distant nations.

Probably the most spectacular flight in the history of aviation was that of Captain Charles A. Lindbergh, a St. Louis Air Mail Pilot, who, leaving Roosevelt Field, New York, at 7.52 A.M. on Friday, May 20, made a non-stop trip to Paris, landing safely at Le Bourget Field at 5.21 P.M. New York daylight saving time, May 21, or 33½ hours for a passage of 3610 miles at an average speed of about 108 miles per hour.

Captain Lindbergh previously had flown from San Diego to St. Louis and from St. Louis to New York reaching Roosevelt Field May 12. Observing the weather conditions and considering

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COLONEL CHARLES A. LINDBERGH

AMERICAN AVIATOR

the various meteorological reports he decided to start the flight just before midnight on Thursday, May 19, in spite of the heavy fog and slight rain. The weather reports indicated that the fog was lifting along the coast and at 2 A.M. when Captain Lindbergh made his final preparations the rain had stopped and at 7.52 A.M. on Friday, May 20, he took his departure. An hour later he was sighted over East Greenwich, R. I. and then over Halifax, N. S., and at several times in the afternoon over Nova Scotia. He was last seen at 6.15 when he passed St. Johns, Newfoundland, and headed over the Atlantic. Various wireless reports were made as Lindbergh approached the Irish coast and as he flew over Ireland his plane was observed at several points. At 8 P.M. French time he was over Bayeux, France, and a few minutes later over Cherbourg, and at 10.24 P.M. on Saturday, May 21, he landed amid great enthusiasm at Le Bourget Air Port. Over 100,000 people swarmed over the field and it was with difficulty that the aviator could make his exit and proceed to the American Embassy where he became the guest of Ambassador Herrick and procured much needed rest.

The plane in which Colonel Lindbergh made his flight was designed by Donald Hall, chief engineer of the Ryan Airlines, Inc., and was known as the *Ryan NY-P* before it was formally christened *The Spirit of St. Louis*. The plane had a span of 46 feet 10 inches, a chord of 7 feet, a length of 38 feet, and a wing area of 319 square feet. The cockpit was entirely enclosed, being placed to the rear of the fuel tanks for safety and balance. These fuel tanks obscured vision directly forward so that a periscope was used consisting of two 45° mirrors so mounted as to reflect the image on the instrument board directly in front of the pilot. This periscope could be extended on the left-hand side of the fuselage at about eye level or could be drawn in out of the way. Additional visibility was secured through windows at each side of the fuselage and by a skylight in the wing. An air scoop provided fresh air in the cockpit at all times. The fuselage was made of welded steel tubing without wires for bracing as a truss system was employed. The engine mounting was built separately of steel tubing and pinned to the fuselage proper by four nickel steel bolts above the gasoline compartment in the fuselage and the outboard struts attached the wings to the fuselage, the outboard struts being of steel with airfoil sections. The wings were of conventional fabric construction being built in one piece, suitably reinforced and covered with fabric and six coats of aluminum pigmented dope.

The engine used for this plane was the Wright "Whirlwind" J5C giving 223 b.h.p. at 1800 revolutions per minute, and there were gasoline tanks with an aggregate capacity of 450 gallons, one tank of 210 gallons capacity being mounted in the centre of the fuselage and another of 88 gallons in front of it in the engine mount. In the wing were three smaller tanks with a volume of 152 gallons; while to the rear of the engine acting as a fire wall was a 25-gallon oil tank. The engine and mounting were well cowled in, ending in a neat nose spinner on the standard steel propeller.

The instruments installed included an earth inductor compass, mounted aft of the cockpit with the controller convenient to the pilot's right hand and the indicator directly in front of the pilot, a magnetic compass, an air speed indicator, a bank and turn indicator, a speed and drift meter, a speed timer (stop watch), a motometer (heat indicator), an oil pressure gauge, ignition switch, an oil temperature gauge, and an enconometer developed by Lindbergh.

The fuselage of the airship was carefully designed and well streamlined so that wherever a longitudinal section was taken it would show smooth curves from the propellor spinner to the tail. The propeller was of duralumin set at 16¼° pitch. *The Spirit of St. Louis* weighed complete with instruments 2150 pounds and carried a useful load of 3144 pounds distributed as follows:

	Pounds
Pilot	170
Gasoline—450 gallons	2,759
Oil—25 gallons	175
Miscellaneous	40
Total	3,144

Thus the gross weight fully loaded at the start of the flight was 5294 pounds. It was reported, however, that the total load of the plane on the take-off was 5150 pounds; while the gross weight lightly loaded at the end of the flight without gasoline and food, but with 10 gallons of oil left was 2415 pounds.

Lindbergh, after his notable reception in Paris, flew to Brussels, where he was similarly received by an enthusiastic populace and by the King and Queen, from whose hands he received decorations and other honors. Flying to London, he enjoyed a repetition of his triumphs, and was given an audience by King George and the Prince of Wales. On his return to France his machine was dismantled, and he sailed to Washington on the U. S. cruiser *Memphis*. He reached Washington on June 11, and there received the Distinguished Flying Cross from President Coolidge. Flying to New York on June 11, he was enthusiastically greeted, and a great public demonstration was held in his honor, in the course of which during a military parade he rode in an open car from the Battery to Central Park. On June 16, he was presented with the $25,000 prize offered by Raymond Orteig for the first non-stop flight from New York to Paris.

On July 20 Colonel Lindbergh, for he had been promoted as a reserve officer, left New York under the auspices of the Daniel Guggenheim Fund for a tour of the United States in his airplane, *The Spirit of St. Louis*. This circuit was completed on October 23, the total distance of the tour being 20,350 miles, and the total time spent in the air 260 hours. During this tour Colonel Lindbergh, who was accompanied by a cabin monoplane belonging to the Department of Commerce, visited 23 State capitals, made a total number of 13 touch stops, and 69 long stops, at all of which he was enthusiastically greeted. Only on one occasion was he late when arriving at the designated point. He used the original engine that was in the plane during his New York-Paris flight. On November 14, Colonel Lindbergh received from the hands of President Coolidge the Hubbard Medal of the National Geographic Society, and on December 8 he received the Langley Medal of the Smithsonian Institution, an honor which had been previously awarded to Orville and Wilbur Wright, Glenn H. Curtiss, and Gustave Eiffel.

The interest which Colonel Lindbergh had aroused by his trans-Atlantic flight and later by his tour of the United States, was again stimulated when this self-possessed and enterprising aviator took off from Bolling Field, Washington, D. C., on December 13, in the *Spirit of St. Louis* for Mexico City, Mexico, a 2031-mile non-stop flight. This trip was made at the invitation of President Calles of Mexico, and as soon as announced it straightway aroused the greatest enthusiasm in Mexico. Lindbergh flew the distance in 27 hours, 10 minutes, or approximately six hours less than his flight from New York to Paris, and he carried a full load weighing 4750 pounds, including 368 gallons of gasoline and 15 gallons of oil. Colonel Lindbergh safely reached his destination, though the weather conditions were far from perfect, and much of the time he was forced to fly blind in addition to experiencing about 13½ hours of darkness.

After a triumphant reception in Mexico City, in the course of which Lindbergh was the recipient of official honors as well as general acclaim, he proceeded to Guatemala City, which he reached on December 29, and was received by President Chacon. On the following day he flew to Belize, the capital of British Honduras. This flight through Central America, which it was intended should be continued to the northern part of South America, did much to promote friendly relations between the Central American republics and the United States. Lindbergh continued his remarkable success as an ambassador of goodwill, and everywhere made warm friends for himself and his country; he was still on his way at the close of the year.

GOOD-WILL FLIGHT. The Good-will flight, to which reference was made in the YEAR BOOK of 1926, was started at Kelly Field, San Antonio, Texas, Dec. 21, 1926, and involved an 18,500-mile circuit of Central and South America by a group of five amphibian airplanes of the U. S. Army Air Corps, navigated by ten officers of that service.

Leaving the City of San Antonio, Tex., these aviators proceeded by stages southward down the east coast of Mexico, reaching Punta Arenas, Costa Rica, on January 16, and then passed down the coast, arriving at La Paz, Bolivia, February 14. The planes went as far as Valdivia, Chile, and then crossed the Andes, and on February 22 the group arrived at Bahia Blanca, Argentina. In their flight to Buenos Aires a mishap occurred February 26, in which Capt. C. F. Woolsey and Lieut. J. W. Benton were killed, in a collision between planes. This accident, however, did not interfere with the progress of the flight which, extending up the Paraná River, reached Asuncion, Paraguay, March 3. Next came Brazil, the Guianas and Venezuela, and by successive stages through the Caribbean sea and the islands of the lesser Antilles, Haiti, and Cuba, the fliers reached Washington, where on May 2, at Bolling Field, the tour was completed. The survivors, Maj. H. A. Dargue, Capt. A. L. McDaniel, Capt. Ira C. Eaker, and First Lieuts. E. C. Whitehead, C. McK. Robinson, M. S. Fairchild, B. S. Thompson and L. D. Weddington, were greeted by the President and honored with the Distinguished Flying Cross.

PINEDO'S FLIGHT. A notable flight of the year was that of Col. Francesco de Pinedo, who left Ostia, Italy, in the airplane *Santa Maria II* February 13, and flew to the Cape Verde Islands. On February 22, Colonel de Pinedo took off for South America, making the flight to the Island of Ferdinando do Moronha, Brazil, a distance ot 1432 miles, in 12 hours. On February 26, he arrived at Rio de Janeiro and then flew to Asuncion, Paraguay, which he reached March 15. He then turned towards North America, and on March 29 arrived at New Orleans, after a flight from Havana. On April 6, while at Roosevelt Dam, Arizona, his plane was destroyed by fire in an accident, and he was forced to await the arrival of a new plane, which on May 8 was assembled and flown experimentally from New York to Boston. De Pinedo completed his tour of the North American continent, and departing from Trepassy, N. F., on May 23, he flew across the Atlantic. He was, however, forced to alight on the water near the Azores, to which he was towed, reaching Horta May 30. After repairs he proceeded, stopping at Lisbon and Barcelona, reaching Ostia at the mouth of the River Tiber on the afternoon of June 16, having completed a 25,000-mile aërial journey involving two flights across the Atlantic and flying over some of the wildest and unexplored regions of South America. The *Santa Maria* alighted on the sea in front of a float where Mussolini and other officials of Italy welcomed Colonel de Pinedo, his navigating officer, Captain Carlo Delprete, and the mechanic, Vitalo Zacchetti.

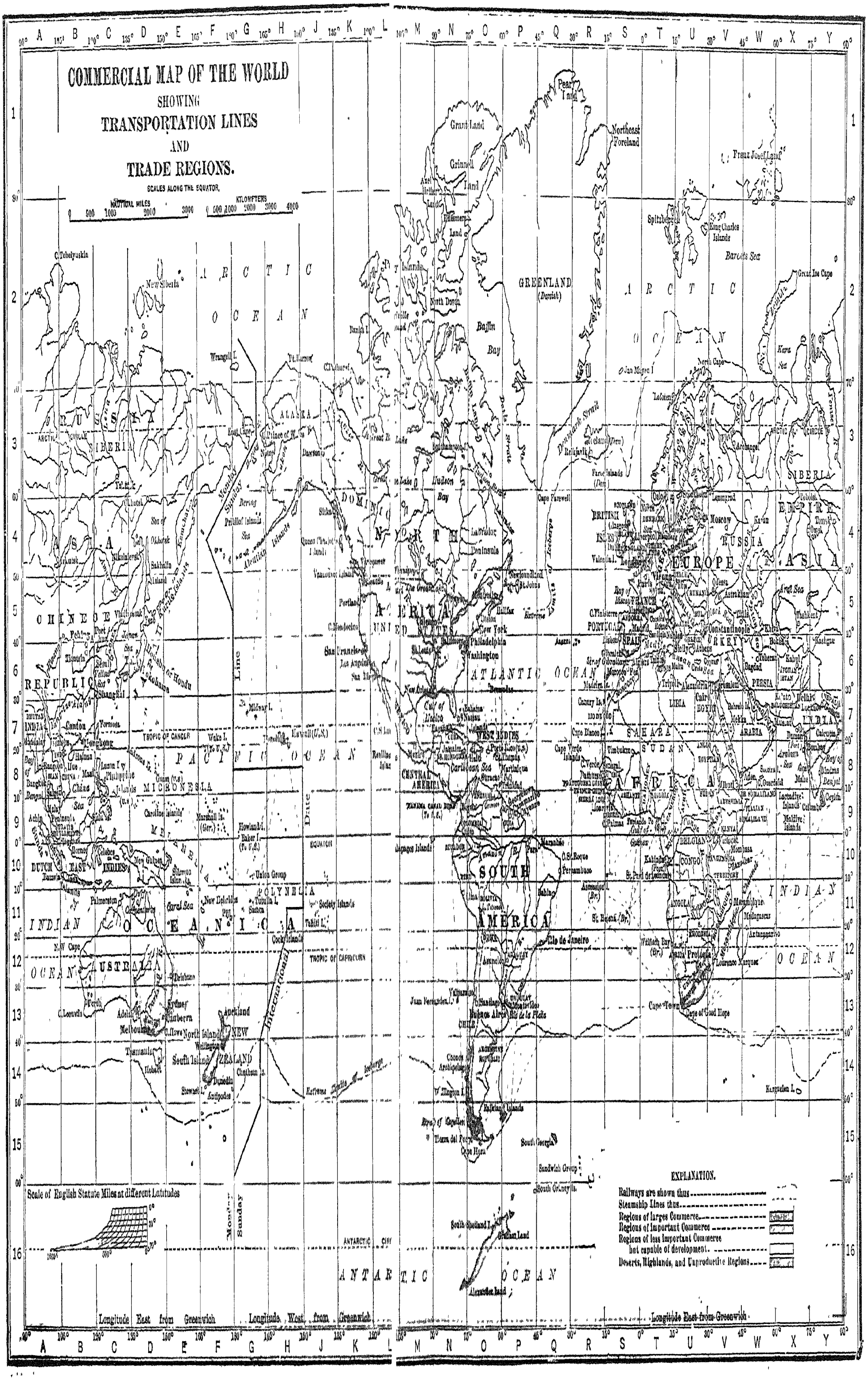
Following Colonel de Pinedo's flight, Maj. Sarmento Beires of Portugal on March 17 flew across the Atlantic from the Bissagos archipelago of Portuguese Guinea to Fernando do Noronha, Brazil.

On April 26 Lieut. Com. Noel Davis, U. S. N., and Lieut. Stanley H. Wooster, who were trying out the airplane *American Legion*, intended for making a New York-Paris flight, were killed in a crash during a test trip at Langley Field, Virginia.

The list of tragedies involving aviators attempting to cross the Atlantic began May 6 when Captain St. Roman and Commander Mouneyres, in an airplane without pontoons, having reached a point 120 miles off Brazil in a flight from Senegal, Africa, to Buenos Aires, disappeared without a trace. The last wireless message gave their position as 120 miles east of the Brazilian coast.

Another tragedy occurred May 8, when Captain Charles Nungesser (q.v.) and François Coli, in the airplane *White Bird*, attempting to fly from Paris to New York, disappeared. The last news of them was that they were sighted passing over Ireland. A careful search was made in Newfoundland, but no traces were found.

CHAMBERLIN'S TRANS-ATLANTIC FLIGHT. As if the accomplishment of Lindbergh were not enough, within a month a second American-built airplane, with an American born pilot, and for the first time carrying a passenger, made its way to the mainland of Europe, traveling 3905 miles in 43 hours. This plane was the Bellanca monoplane *Columbia*, piloted by Clarence D. Chamberlin, and carrying the passenger, Charles A. Levine, which previously, April 14, had made the world's endurance record, elsewhere discussed. This plane left Roosevelt Field, L. I., at 6.05 A.M., Saturday, June 4, and made its flight to Helfta, Germany, where a landing was made at 4.15 A.M., Monday, June 6, establishing a new world's non-stop distance record.



COMMERCIAL MAP OF THE WORLD SHOWING TRANSPORTATION LINES AND TRADE REGIONS.

SCALES ALONG THE EQUATOR.

EXPLANATION.

Railways are shown thus

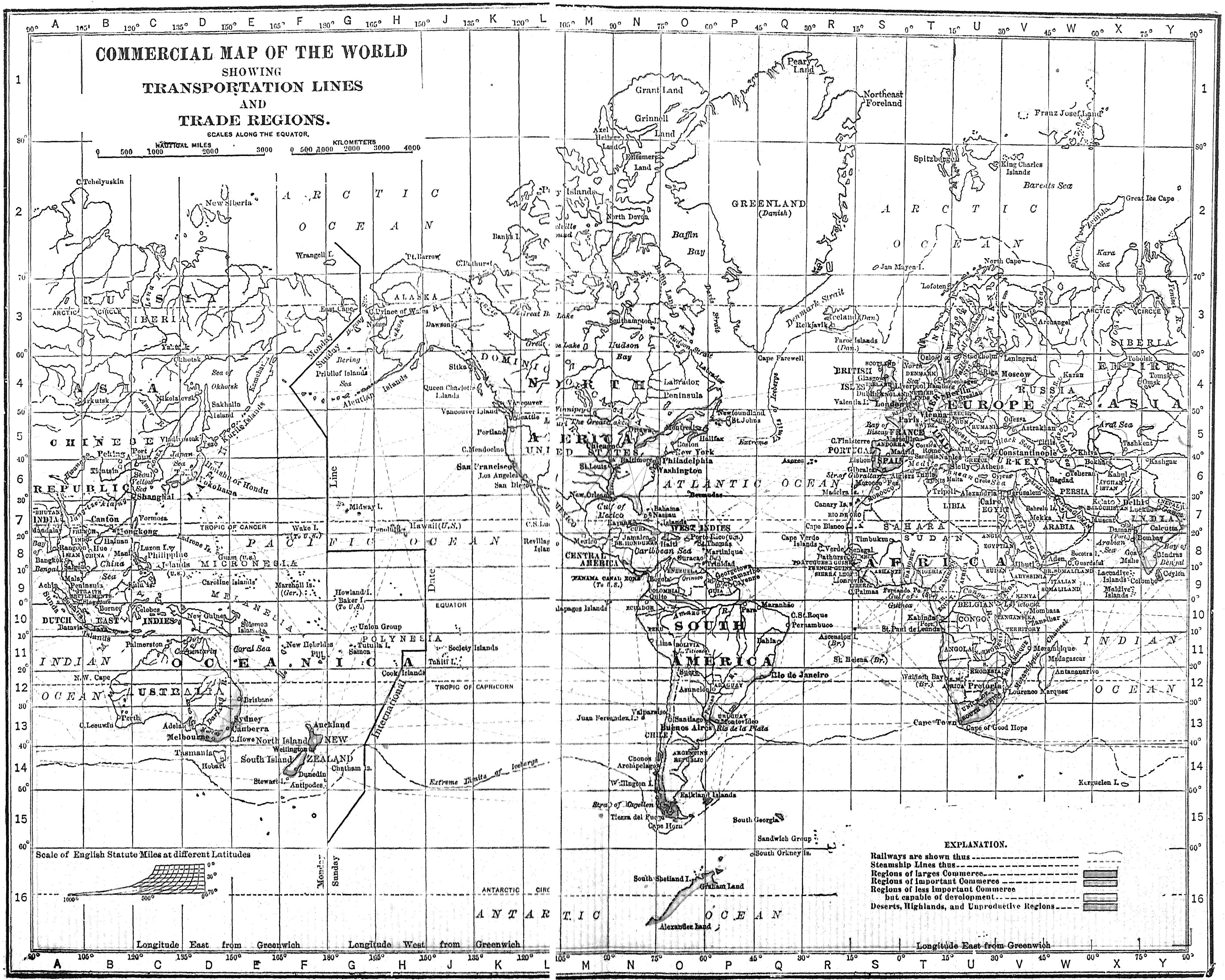
Steamship Lines thus

Regions of largest Commerce

Regions of Important Commerce

Regions of less Important Commerce but capable of development.

Deserts, Highlands, and Unproductive Regions



COMMERCIAL MAP OF THE WORLD
SHOWING
TRANSPORTATION LINES
AND
TRADE REGIONS.

SCALES ALONG THE EQUATOR.

The landing was made at Helfta, near Eisleben, Saxony, on account of lack of gasoline and inability to know their location. Taking on gasoline, they proceeded to Kottbus, where they were forced again to the ground in a marsh, with a broken propeller. The damage repaired, they proceeded to Berlin. Chamberlin and Levine were the recipients of notable honors on their landing at the German capital, and at other European cities.

Pacific Flights. While aviators were busy over the Atlantic, Lieut. L. J. Maitland, U. S. A., and Lieut. A. F. Hegenberger, U. S. A., in the army transport C-2, a Fokker plane with three Wright Whirlwind engines flying from Oakland Airport, Cal., June 28, reached Wheeler Field, Island of Oahu, Hawaii, June 29, a distance of 2400 miles in 25 hours, 15 minutes. This was the first time that a trip by air had been made between the American continent and the Hawaiian Islands, and in addition a world record for distance flying over open water was made. On landing, the two officers received a notable welcome, and on their return to San Francisco, July 12, they were given official receptions, and July 21 the Assistant Secretary of War for Aëronautics, F. Trubee Davison, cited them for the Distinguished Flying Cross.

The transit of the Pacific, however, was not confined to army officers, for on July 14, Ernest L. Smith and Emory B. Bronte flew from San Francisco to Molokai, Hawaii, in a civilian monoplane, *City of Oakland*, a distance of 2348 miles, in 25½ hours. The plane was wrecked in a forced landing due to exhaustion of gasoline.

Previously, May 25, James D. Dole of San Francisco had announced awards of $25,000 and $10,000 for non-stop Pacific Coast-Hawaii flights, open to civilians and available August 1. The substantial prizes for this specific trip aroused general interest, and a number of civilian and other aviators announced their intention of competing, though the time of preparation, as was demonstrated later, was all too short. Even before the race two regrettable accidents occurred, resulting in fatalities. On August 10 Lieut. George W. D. Covell, U. S. N., and Lieut. R. S. Wagner, U. S. N., were killed at Point Loma, Cal., when their plane crashed as they were on their way to participate in "the Dole Derby," as the race became known. On August 12 Capt. Arthur V. Rogers, a British ace, also was killed at Los Angeles, during a test flight in preparation for the same event.

On August 16, the date arranged for the race, a number of planes left Oakland, Cal., and the Travelair monoplane *Woolaroc*, with Arthur C. Goebel as pilot and Lieut. W. N. Davis, U. S. N., as navigator, successfully made the journey in 26 hours, 17 minutes 33 seconds, and won the first prize of $25,000. The second prize was won by the Breese monoplane *Aloha*, piloted by Martin Jensen with Paul Schulter as navigator, in 28 hours 16 minutes; these two planes alone completed the flight. Of the other entries, the plane *Miss Doran*, with Mildred Doran, John A. Pedlar and Lieut. V. R. Knope, and the *Golden Eagle*, with J. W. Frost and Gordon Scott, were both lost; while the plane *Dallas Spirit*, with W. P. Erwin and A. H. Eichealdt, which left in search of the missing craft August 19, also was not heard from.

Commander Byrd's Flight. Returning to the Atlantic, record should be made of a notable flight by Com. Richard E. Byrd, U. S. N., who flew from New York in a tri-motor Fokker monoplane, *The America*, accompanied by Bert Acosta, Lieut. George O. Noville, U. S. N., and Bernt Balchen, leaving Roosevelt Field, L. I., at 5.24 A.M. June 29. At 2.30 A.M. on July 1, this plane, after being in the air 43 hours and 21 minutes, was forced down at Ver-sur-Mer on the western coast of France 200 yards from the shore, in a persistent fog and rain. The descent was forced by exhaustion of the fuel supply. The plane, which weighed 17,261 pounds on starting, was badly damaged, but the records and the official mail were saved, the aviators making their way ashore by means of a rubber life raft. The major object of this flight was to obtain scientific data looking towards regular trans-Atlantic aviation, and while the aviators were unable to make their landing in Paris as they anticipated, the technical results obtained fully warranted the attempt. Commander Byrd and his companions received official and other honors in Paris, and on July 12 they sailed from France to New York, being joined at Southampton by Clarence D. Chamberlin. The five received a notable welcome in New York city on their arrival July 18. On the following day Commander Byrd and Lieutenant Noville were decorated by Secretary of the Navy Wilbur with the U. S. Navy Distinguished Flying Cross.

A misfortune that occurred on or about August 25 was when an American aviator, Paul Redford, took off from Glynn Isle Beach, Brunswick, Ga., in the plane, *Spirit of Brunswick*, in an attempt to make a 4600-mile non-stop flight to Rio de Janeiro, Brazil. He was sighted by a north-bound steamer on his first night, flying over open water, but from that time no trace of plane or flyer was found. He carried in the plane a load of 518 gallons of gasoline, which would have enabled him to stay aloft for about 52 hours if everything had gone well. He planned to arrive in Rio de Janeiro August 27 at about 2.30 P.M.

During the spring and summer the question of a flight from Europe to America was further discussed, notwithstanding the fate of Nungesser and Coli. On August 14 the two Junker all-metal monoplanes, *Bremen* and *Europa*, left Dessau, Germany, on a western passage, but both failed, the *Europa* being forced down in a fog and the *Bremen*, encountering head winds and storms off Ireland, returning to its place of departure.

On August 31 a Fokker Jupiter airplane *St. Raphael*, carrying Princess Anne Löwenstein-Wertheim and Capt. Leslie Hamilton and Lieut.-Col. Frederick F. Minchin, leaving Upavon, England, for Ottawa, Canada, was lost. Nothing was heard of the plane after it left the Irish coast.

Another accident occurred September 8, when the plane *Old Glory*, with Lloyd Bertaud, James DeWitt Hill, and Philip A. Payne left Old Orchard Beach, Me., on a projected flight to Rome, Italy. Nothing positive was heard of the airplane after a call of SOS was picked up by the steamships *Carmania* and *Lapland*. On the same day two Canadians, Capt. T. B. Tully and Lieut. James V. Metcalf, who had come from London, Ontario, flew from Harbor Grace, N. F. V., in the plane *Sir John Carling* on a proposed non-stop flight to London, England. Apparently the beginning of the flight was successful, but no trace was later found of the plane and its aviators.

Schlee and Brock. An interesting flight in an attempted trip around the world was made by Edward F. Schlee and William S. Brock in the Stinson-Detroit monoplane *Pride of Detroit*. It ended at Tokio, Japan, September 14, when they gave up their original intention to cross the Pacific, lacking fuel supplies at the Midway Islands. These aviators, who had departed from Detroit, flew from Harbor Grace, N. F., August 28, landing at Croydon Aërodrome, England. They continued their progress in an easterly direction, stopping first at Munich and then at 14 other cities en route, and making 12,295 miles in 145 hours of flight during 18 days. They were engaged in an effort to beat the world's record of 28 days for the aërial circumnavigation of the globe, and without extraordinary or government preparation had carried on their trip in an efficient and earnest manner. On account of the many accidents that had taken place on trans-oceanic flights, they were persuaded to give up their flight across the Pacific from Japan and to ship their plane home by steamship.

On October 11 Ruth Elder and George Haldeman flew from New York in a single-motored monoplane, *The American Girl*, for Paris, the former being anxious to gain the record of being the first woman to cross the Atlantic in an airplane. Owing to a broken oil connection developing, after a distance of 2600 miles had been accomplished, the plane was forced down, and Miss Elder and her companion were picked up by a Dutch steamer off the Azores. The plane was a total wreck, but the two aviators continued their journey to Europe where they were honored in several capitals.

Still another disaster occurred when Mrs. Frances W. Grayson and her pilot, Bruce Goldsborough, leaving Roosevelt Field, N. Y., in the Sikorsky plane *Dawn*, December 23, bound for Harbor Grace, N. F., disappeared entirely. They were last seen over Cape Cod, two hours after they took off. Notwithstanding a search by the U. S. Navy dirigible *Los Angeles* and the destroyers *Mahan* and *Sturtevant*, carried on by order of the U. S. Navy Department, no trace of the plane was found.

Another important trans-Atlantic and extended flight commenced October 10. Dieudonne Costes and Joseph Le Brix took off from Le Bourget airport, Paris, for St. Louis, Senegal, about 2700 miles distant, which they reached in 25 hours, 17 minutes. On October 14 they proceeded to Port Natal, Brazil, whence, after stopping a day, they set out for Rio de Janeiro. They flew in a Breguet plane, named *Nungesser-Coli*, with a 500-h.p. Hispano-Suiza water-cooled engine. It was the Breguet plane that was used to make the two long-distance records from Paris to Omsk, Siberia, and from Paris to Djsk, Persia, in the previous year, distances of 3350 miles and 2580 miles, respectively, being covered. The plane was recovered, inspected and reëquipped for the trip, and functioned successfully not only in the trip across the Atlantic, but in subsequent flights of these aviators in South America. Costes and Le Brix remained the rest of the year in South America, and did considerable flying.

Aviation Competitions

Schneider Trophy Race. This important competition for seaplanes was held September 26 off the Lido, Venice, Italy, over a course of 50 kilometers and a total distance of seven laps, or 350 kilometers. The race was held in Italy because Maj. Mario de Bernardi, Italy's representative, won the competition at Norfolk, Va., in 1926. (See the 1926 New International Year Book.)

The race was won by Flight Lieut. S. N. Webster, R. A. F., for Great Britain, flying in a Super Marine S-5 Napier monoplane with a geared-down Napier Lion racing engine. Lieut. Webster flew the 350 kilometers (217.483 miles) in 46 minutes and 20.08 seconds, or an average speed of 453.282 kilometers per hour (281.655 miles per hour). Second place was also won for Great Britain by Flight Lieut. O. F. Worsley, flying another Super Marine S-5 Napier machine fitted with a direct-drive Napier Lion engine, in 47 minutes, 46.75 seconds, with an average speed of 439.472 kilometers per hour (273.073 miles per hour). These two British machines were the only ones of a field of six starters that were able to finish, and the winners' average speed may be compared with the previous record of 246.496 miles per hour established in 1926.

Of the four other contestants in 1927, Major de Bernardi, who flew in a Macchi plane equipped with a Fiat 12-cylinder engine, was forced out on the second lap, while Capt. Arturo Ferrarin, the other Italian representative, also in a Macchi plane, ruptured a piston and experienced backfire on the first lap and was compelled to drop out soon after crossing the starting line. Flight Lieut. S. M. Kinkead of England, in a Gloster IV plane fitted with a Napier Lion engine, after flying very fast, dropped out on the sixth lap, owing to his propeller spinner starting to burst; while Captain Guazzeti of Italy, in a Macchi machine, almost completed the sixth lap, but was compelled to retire by irregular fuel supply.

The Jacques Schneider Cup had been won once by France, three times by Italy, twice by the United States, and once by England, the 1927 victory making England's second success. It was stated in connection with this competition that the average speed of the race had increased from 1921 at an approximate rate of 30 miles per hour per year. The United States was not represented in the 1927 competition, as the most available plane, the Kirkham racing plane, with a 1200-h.p. Packard X engine, o Lieut. A. J. Williams, U. S. N., could not be con ditioned in time to be sent to Europe. In con nection with this race it was proposed afte the competition in Italy to make it a biennia event, on the ground that the preparations in volved in developing one or more planes were s elaborate as to make it almost impossible fo a team to be developed each year. However, n definite decision had been reached in this mat ter at the end of the year.

National Air Races, 1927. This importan American competition was held at Felts Fiel Spokane, Wash., September 19–25, and was or of the most successful meetings of the kin ever held in the United States, both financiall and from the standpoint of performance. The were no accidents of any consequence, and t races paid their own way, the gate receip and other revenues amounting to about $114 068, and the total expenses being estimated $113,106, in which amount were included sor

Underwood & Underwood

AMERICAN AVIATORS OF 1927

GROUP OF FAMOUS TRANS-OCEANIC FLIERS RECEIVED AT THE WHITE HOUSE, NOVEMBER 14, 1927

LEFT TO RIGHT: LIEUTENANT LESTER J. MAITLAND, U.S.A., CLARENCE D. CHAMBERLIN, ARTHUR C GOEBEL, CHARLES A LINDBERGH, MISS RUTH ELDER, PAUL SCHLUTER, EMORY B. BRONTE, LIEUTENANT A. F. HEGENBERGER, U.S.A., COMMANDER RICHARD E. BYRD, U.S.N., GEORGE HALDEMAN, CHARLES A LEVINE, BERNT BALCHEN, AND WILLIAM S BROCK

$47,251 for prize money and $19,411 for trophies and other expenses. The guarantee of $60,000 advanced by business men of Spokane was returned.

A non-stop race from New York to Spokane was scheduled in connection with the National Air Races, but was not successful. Three pilots were on hand the day of the start, but there were only two actual starters. Eddie Stinson, accompanied by Fred Koehler in a Stinson-Detroiter monoplane with a Wright Whirlwind gine, made the better performance, landing Missoula, Mont., while C. A. Schiller and lward Bohn, in a plane of similar type, were rced down at Billings, Mont.

The meet opened with the National Air Derby, race for civilian planes, from Roosevelt Field, I., to the Spokane airport, in two classes. The ce in Class A, with fifteen planes starting ptember 20, was won by a Laird biplane, with right Whirlwind engine, entered by the Na- onal Lead Battery Company. It was piloted by W. Holman, and won in the elapsed time of 19 ours, 42 minutes 47 seconds. Second place so was taken by a Laird plane, piloted by E. Ballough in 20 hours, 18 minutes and seconds, and third was won by a Buhl Air- er plane, piloted by N. B. Mamer, with an apsed time of 20 hours, 59 minutes and 13 conds. There were eight entries that flew e distance, a number of others being withdrawn failing to start. The first prize in this mpetition was $10,000. In class B, with 25 lanes starting September 19, the first prize $5,000 was won by a Waco airplane piloted y C. W. Meyers, with an elapsed time of 30 ours, 23 minutes and 15 seconds; second prize as won by an Eaglerock plane, piloted by eslie C. Meyers, in 30 hours, 47 minutes and 3 seconds; and third by an Eaglerock plane, iloted by J. S. Charles, in 31 hours, 48 minutes nd 37 seconds. Nine of the entries completed he course, numerous others failing to start or eing withdrawn.

The Pacific Coast Air Derby was for a flight rom Mills Municipal Field, San Francisco, Cal., o the Spokane Airport. In class A the Travel Air airplane, piloted by H. C. Lippiatt, won with an elapsed time of 8 hours, 16 minutes and 37 seconds; the International biplane, piloted by Lee Schoenhair, was second with 8 hours, 40 minutes and 35 seconds; and the Breese monoplane, piloted by Vance Breese, was third with 10 hours, 5 minutes and 24 seconds. There were five entries in this class, for which the first prize was $1500. For Class B of the Pacific Coast Air Derby six out of eight entries started and four finished, the winner, who received a prize of $1000, being C. L. Langdon, in the International airplane, with 9 hours, 59 minutes and 18 seconds. Second place was taken by the Travel Air airplane, piloted by D. C. Warren, in 10 hours, 18 minutes, 14 seconds, and third place by the Eaglerock airplane piloted by Lee Willey, in 10 hours, 27 minutes, 28 seconds.

After these preliminary distance flights, the first event of the National Air Race was for the *Aëro Digest* Trophy, to be competed for by civilians flying sport planes over a course of 60 miles. The first prize of $500 was won by E. B. Heath, with a speed of 74.43 miles per hour, three other entries withdrawing.

Next came a civilian competition for light commercial planes, for prizes offered by the Aviation Town and Country Club of Detroit, in which both speed and efficiency featured. The first prize for speed of $500 was won by James Ray in a Pitcairn airplane, who made a speed of 138.394 miles per hour and ranked third in the efficiency competition with a score of 33.074. First place in the efficiency competition, carrying with it $900, was taken by John H. Miller in a Hamilton Metal Company airplane, with a score of 528.400. There were ten competitors in this race, while one did not finish and six entries did not start.

The Western Flying Trophy Competition, a free-for-all race for two or more place low-powered airplanes for civilians only, brought out ten starters, and the first prize of $1000 was won by Eugene Detmu in a Travel Air airplane, with a speed of 102.55 miles over the eight 10-mile laps.

The only starter in the *Dayton Daily News* light airplane trophy competition for civilians was E. B. Heath, who flew in a Heath Parasol airplane, making a speed of 73.417 miles per hour for the 30 miles and taking the first prize of $500.

A military competition for the Liberty Engine Builders' Trophy, for observation type, two-place airplanes flown over a course of 100 miles, with individual trophy awards to the first four winners, was won by Lieut. H. A. Johnson in a Curtiss Falcon XO-13A airplane with Curtiss V-150 engine, who made an average speed of 170.156 miles per hour. In this competition each plane was required to carry a contest load based on engine displacement, and in addition 340 pounds of crew weight.

Another military competition was the Packard Motor Car Company trophy race for large-capacity airplanes, in which individual trophy awards were given to the first, second, third and fourth place winners. Lieut. H. W. Beaton, in a Fokker C-2 airplane, took first place with a speed of 115.198 miles per hour.

The race for pursuit type army planes, with individual trophy awards to the first four place winners, was won by Lieut. W. L. Cornelius in a Curtiss P-1-B airplane, with a speed of 158.412 miles per hour.

The Seattle Chamber of Commerce free-for-all race for two-, three- or four-place airplanes, was restricted to civilians and carried a first prize of $1000. It was won by James Ray, in a Pitcairn airplane, with a speed of 136.145 miles per hour, flying one lap at a speed in excess of 141 miles per hour. Twelve planes finished, the number including all actual starters. This competition was over a course of 80 miles, or 10 laps.

The *Aëro Digest* National Guard Trophy speed race for National Guard pilots and planes was won by Capt. Tom Simons in a Douglass O-2 plane, with a speed of 110.834 miles per hour, there being four starters, of which one was ruled out for fouling the pylon.

Three civilian airplanes started in the *Detroit News* Air Transport Trophy speed and efficiency race. First place for speed, with a prize of $750, was won by Frank M. Hawkes in a Ryan airplane, making 104.837 miles per hour. Second place for speed was won by Jack Frye in a Fokker plane, with 100.065 miles per hour, and third place by John H. Miller, in a Hamilton plane, with 96.080 miles per hour. When it came to efficiency this order was reversed, Miller ranking first with 925.587, Frye second with 918.727, and Hawkes third with 905.011.

The Spokane *Spokesman-Review* offered a set of trophies for a free-for-all military pursuit-ship race, which was won by Lieut. Eugene C. Batten with a Curtiss XP-6-A (Curtiss Hawk) airplane equipped with a Curtiss V-1550 engine and with wing radiators. This plane made the remarkable speed of 201.239 miles per hour, winning from Lieut. A. J. Lyon, whose Curtiss Hawk plane had a tunnel radiator under its nose, but used a similar engine. Lieutenant Lyon's speed was 189.608 miles per hour. There were ten starters in this race, all but nine finishing, one being ruled out for cutting a pylon in his circuit.

In the closed event for Naval and Marine Corps planes known as the Alexander Pantages Trophy race for pursuit-type navy planes, there were five entries, first place being taken by Lieut. T. P. Jetter in a Boeing F. B.-type plane, with a speed of 177.040 miles per hour.

Ford Reliability Tour. The third Ford reliability tour started at Detroit, June 27, and ended at that city July 12. Fourteen planes took off for the 3800-mile journey, which included 25 sections and involved stops at Buffalo, Geneva, Schenectady, Boston, Hartford, New York, Philadelphia, Baltimore, Pittsburgh, Cleveland, Kalamazoo, Dayton, Columbus, Cincinnati, Louisville, Memphis, Pine Bluff, Dallas, Oklahoma City, Tulsa, Wichita, Omaha, Moline, Hammond, Grand Rapids and Detroit. Of the planes which started, one was withdrawn for personal reasons, another, although completing the tour, was so seriously delayed by engine troubles that it was disqualified, while twelve planes finished in a satisfactory condition. The tour was won by Eddie Stinson, who flew in a Stinson-Detroit monoplane with a single Wright Whirlwind engine, with a point score of 9853.7. Second place was taken by Randolph Page, in a Hamilton monoplane, also with a single Wright Whirlwind engine, with a total of 7803.5 points; and third place was won by Harvey C. Mummert in a Mercury biplane with a Curtiss C-6A engine. Previous to the tour, tests of landing and take-off speeds and high speeds with contest loads were made to determine the "merit factor" of each plane. The formula used to decide the tour provided that the winner was to be the airplane carrying the greatest load with the least horse power at the highest speed plus the ability to get off the ground quickly and to stop in the shortest distance when landing. The Ford tour indicated further improvement in the construction and operation of planes and demonstrated the relative merits of both planes and engines when handled by experienced pilots.

Airplane Records. During 1927 a number of important records were made by airplanes, which served to indicate distinct progress in the development of the airplane and its engines as well as in skill of the pilots. In addition to the notable trans-Atlantic and trans-Pacific flights already referred to, the United States obtained at least its share of the records of the year. In Class C for airplanes returning to the point of departure without fueling, a world's record for duration was made by the German aviators, Cornelius Edzard and Johann Risctics, flying in a Junkers W-33 plane, with a Junkers L-5 engine of 230 h.p., at Dessau, August 3–5, when they spent 52 hours, 22 minutes, and 31 seconds in flight. In this trip they also made the world's record for distance, namely of 4660.62 kilometers, or 2895.97 miles. The world's record for duration thus supplanted, and the American record, had been made at Roosevelt Field, L. I., April 12–14, when Clarence D. Chamberlin and B. B. Acosta, in a Bellanca monoplane with a Wright Whirlwind J-5, 200-h.p. engine, were in the air 51 hours, 11 minutes, and 25 seconds. Chamberlin also made a world's record for air-line distance when on June 4 he started in his Wright-Bellanca plane, with a Wright J-5 200-h.p. engine, flying to Eisleben, Germany, making a distance of 6294 kilometers, or 3911 miles, as referred to elsewhere.

During the year the world's altitude record was claimed by a French aviator, Jean Callizo, but an investigation revealed fraud on the aviator's part, so that the record was supplanted by that of Lieut. C. C. Champion, U. S. N., who on July 25, 1927, had made a record of 11,727 meters, or 38,474 feet, flying in a Wright Apache plane with a Pratt & Whitney Wasp super-charged 425-h.p. engine. Lieutenant Champion, it may be stated, also had previously made a world's record for seaplanes, rising on July 4, 1927, at Washington to a height of 11,581 meters (37,995 feet), these records, of course, being American records as well as world's records.

It was stated that the world's altitude record was broken December 23, at Turin, Italy, by Renato Donati for whom an ascent of 38,792 feet was claimed.

On March 21–22 the world's records for duration and distance for airplanes with useful load of 500 kilograms (1102.3 pounds)—that is, pay load or ballast, exclusive of pilot, gasoline and oil—returning to point of departure, were made by the German aviators W. K. Schnabele and Fritz Loose, in a Junkers W-35 plane with a Junkers L-5 engine of 320 h.p., at Dessau. The world's duration record thus made was 22 hours, 11 minutes, and 45 seconds, and a distance record of 2735.586 kilometers (1699.81 miles). With the same amount of useful load, a world's record for 2000 kilometers was made by the German aviator, H. Steindorff, in a Rohrbach-Roland plane with 3 B. M. W. 230-h.p. engines, at Staaken, July 31, 1927, amounting to 205.407 kilometers per hour, or 127.632 miles per hour. In this same flight Steindorff, who flew 2315.338 kilometers (1438.680 miles), made a distance record with a useful load of 1000 kilograms, and a speed record of 214.865 kilometers per hour (133.504 miles), and a speed record for 2000 kilograms of 205.407 kilometers per hour (127.632 miles).

The world's duration record for an airplane with a useful load of 1000 kilograms (2204.12 pounds), was also made by a German aviator, Fritz Horn, in a Junkers G-24 plane with three Junkers L-11 engines of 230 h.p. each, at Dessau, April 4. With the same load, Steindorff, in the plane mentioned above, at Staaken on August 12, made a world's record for altitude of 6805 meters, or 22,326 feet.

The speed record for 500 kilometers for airplanes with a useful load of 1000 kilograms was made by the Czechoslovakian aviator, A. Jesek, in a Letov S-16 plane with a Hispano-Suiza engine of 450 h.p., flying from Prague, October 13. His speed was 230.929 kilometers per hour (143.492 miles). With an even heavier load, namely of 2000 kilograms, or 4409.24 pounds, the record for duration was broken by J. Risctics, a German aviator, in a Junkers G-24 plane with three Junkers 280-h.p. engines, at Dessau, June 29, his time in the air being 13 hours, 1 minute, 12.8 seconds. With a similar load, Herman Steindorff, in a Rohrbach-Roland plane with 3 B. M. W. engines of 230 h.p., each, flew a distance of 1750.469 kilometers (1087.68 miles), at Staaken, July 31.

The altitude record for an airplane with a useful load of 2000 kilograms was made by an Italian, Domenico Antonini, at Cascina, Malpensa, May 26, when, flying in a Captoni C. A.-73 plane with two Isotta-Fraschini engines of 500 h.p. each he reached a height of 6262 meters (20,544 feet). With a useful load of 2000 kilograms, Steindorff, on July 28 made speed records for 500 and 1000 kilometers, at Staaken, of 215.378 kilometers per hour (133.828 miles), and 214.855 kilometers per hour (133.504 miles).

In contrast to the foregoing records, a number of world's records for light airplanes were also made during the year. In the first category, Class C, for two-seaters weighing empty less than 400 kilograms, Finat and Labric of France, flying in a closed circuit in a Candron-109 with a Salmson 40-h.p. engine, at Le Bourget, Oct. 20, made a world's record for a distance of 1146.834 kilometers (712.08 miles). On October 22, Monsieur and Madame Finat, in the same plane, flying from Le Bourget to Tempelhof Field, Berlin, flew 858.0 kilometers (539.3 miles), making a world's record for air-line distance. The world's record for altitude for this category of plane was achieved October 9, by the German aviators, Joseph Bohme and Reinhold Lofmk, in a Baumer B. L. V. Dl-158 with a Wright L-4 engine of 60 h.p., at Hamburg, when a height of 5680 meters (18,630 feet) was recorded. The speed record for this class also went to Germany, Paul W. Baumer and F. Puls Baumer making a speed of 191.959 kilometers per hour (119.276 miles), on July 10 in a flight from Hamburg to Faulsbuttel.

In the second category of light airplanes, including single-seaters which weighed empty less than 200 kilograms, the world's record for distance in a closed circuit was made by the Hungarian, Charles Kaszala, flying in a Lanipich monoplane with a Thorotzkai engine of 18 h.p., at Budapest, September 14. He achieved a distance of 650 kilometers (403.9 miles). In the third category of light airplanes, Class C, including single-seaters that weighed empty from 200 to 300 kilograms, inclusive, Max Knipping of France, flying in a Candron-109 with a Salmson 40-h.p. engine at Le Bourget, October 26, flew 1581.840 kilometers (982.304 miles) in a closed circuit. Knipping also achieved the world's air-line distance for this class, flying October 30, from Le Bourget to Königsberg, Germany, a distance of 1400.8 kilometers (870.3 miles). The altitude record in this class was won by the German aviator Paul W. Baumer, in a Baumer airplane with a Wright 60-h.p. engine, rising from Hamburg, July 8, to a height of 6782 meters (22,250 feet). The speed record for light airplanes of the third category was made August 24 by the British aviator, Capt. H. S. Broad, in a D. H. Tiger Moth plane with a D. H.-32 engine of 130 h.p., at Stag Lane.

The year 1927 was notable for important records being made by seaplanes, the first of these being that for distance made by Lieuts. B. J. Connell and H. C. Rodd, U. S. N., flying in the P. N.-10 with two Packard 600-h.p. engines at San Diego, Cal., August 16 and 17, when they made a world's and American record for distance flying of 2525 kilometers (1569 miles), returning to the point of departure without refueling.

The world's and American record for altitude already mentioned were made by Lieut. C. C. Champion, U. S. N., in a Wright Apache plane with Pratt & Whitney Wasp supercharged 425-h.p. engine, at Anacostia, D. C., July 4, when 11,581 meters (37,995 feet) were attained. Later in the year the Fédération Aèronautique Internationale awarded to Lieutenant Champion the world's record for altitude of 38,474 feet, made July 25. The maximum speed record for seaplanes, also mentioned above, was made by Maj. Mario de Bernardi in a Macchi M-52 plane with a Fiat-51 engine at the Lido, Venice, Italy, November 4. It was 479.290 kilometers per hour (297.816 miles). In unofficial trials this speed was bettered. The speed record for 100 kilometers by seaplane was made by Lieutenant Webster of the British Royal Air Force in a Super Marine S-5 with a Napier 1000-h.p. engine, in the Schneider trophy competition at Venice, September 26. It was 456.522 kilometers per hour (283.669 miles).

The world's seaplane record for 1000 kilometers came to the United States, being achieved by Lieut. Rutledge Irvine, U. S. N., in a Vought Corsair plane with a Pratt & Whitney Wasp 425-h.p. engine, on May 21, over the short closed course of 25-km. circuit at Hampton Roads, Va.; a speed of 210.716 kilometers per hour (130.932 miles), was achieved. This involved making 119 turns, and beat the world's record by over 27 miles per hour. The speed record for 2000 kilometers went to Switzerland, where Richard Wagner and George Zinsmaier, in a Dornier Merkur plane with a B. M. W. 500–600-h.p. engine, at Altenheim, August 10, accomplished 172 kilometers per hour (106.87 miles). The American speed record for 2000 kilometers was made by Lieuts. B. J. Connell and H. C. Rodd, U. S. N., at San Diego, Cal., August 15–16, in a P. N.-10 plane with two Packard engines of 600 h.p. each, at a speed of 126.567 kilometers per hour (78.644 miles).

Seaplanes flying with a useful load of 500 kilograms (1002.31 pounds), and returning to the point of departure, also scored new records in 1927. Lieutenants Connell and Rodd, in the flight referred to above, also made a world's and American duration record of 20 hours, 45 minutes, and 40 seconds, and a distance record of 2525 kilometers (1569 miles). A seaplane altitude record, with 500 kilograms useful load, was made by Lieut. George R. Henderson, U. S. N., in a Vought Corsair observation plane with a Pratt & Whitney Wasp engine of 425 h.p., at Washington, D. C., April 14, when he achieved 6760 meters (22,178 feet). Likewise, a world's speed record for 100 kilometers under similar conditions came to the United States when Lieut. S. W. Calloway, U. S. N., in a similar plane at Hampton Roads, April 23, made 236.998 kilometers per hour (147.263 miles). For 500 kilometers with a useful load of 500 kilograms Lieut. J. D. Barber, U. S. N., in a Vought Corsair plane with a Pratt & Whitney Wasp engine of 425 h.p., at Hampton Roads, Va., made a world's record of 218.90 kilometers per hour (136.023 miles), on April 30.

Under similar conditions the world's record speed for 1000 kilometers was made at Dessau, May 11, by the German aviator, George Juterbock, in a Junkers W-34 plane with a Bristol Jupiter engine of 420 h.p., who achieved 181.447 kilometers per hour (112.695 miles). An American record for this distance was made at San Diego, Cal., July 8, by Lieuts. B. J. Connell and S. R. Pope, U. S. N., in a P. N.-10 plane with two Packard engines of 600 h.p. each, and was 142.74 kilometers per hour (88.69 miles).

The world's record for duration, for seaplanes with a useful load of 1000 kilograms (220.462 pounds), returning to point of departure, came to the United States for the flight made on July 8 by Lieutenants Connell and Pope, referred to above. It was 11 hours, 7 minutes and 18 seconds. The distance record under these conditions was made by the Swiss aviators Wagner and Zinsmeyer, in their flight of August 8, and was 1600 kilometers (994.19 miles). The American distance record was made by Lieutenants Connell and Pope on their July 8 flight, and was 1525.189 kilometers (947.705 miles). The altitude record with a useful load of 1000 kilograms went to Switzerland, Richard Wagner in his Dornier Merkur plane with a B.M.W. 500–600-h.p. engine, at Altenheim, July 8, accomplishing 5851 meters (19,196 feet). The world's speed record for 100 kilometers under these conditions went to J. Riscties, the German aviator, who flew June 1, at Dessau in a Junkers W-34 plane with a Jupiter 420-h.p. engine, and accomplished 196.078 kilometers per hour (121.836 miles). The American record for 100 kilometers, as well as for 500 and 1000, was made by Lieutenants Connell and Pope at San Diego, Cal., July 8, in the flight already noted. For 100 kilometers, it was 148.92 kilometers per hour (92.53 miles), for 500 kilometers, 145.68 kilometers per hour (90.52 miles); for 1000 kilometers, 142.74 kilometers per hour (88.69 miles). The world's record for speed for a seaplane with a useful load of 1000 kilograms for a distance of 1000 kilometers was accomplished by Wagner and Zinsmeyer in their flight of August 8, mentioned above, and was 175.6 kilometers per hour (109.11 miles). For a seaplane with a useful load of 2000 kilograms (4409.24 pounds), returning to the point of departure, world's records for duration and distance were made by Lieutenants Connell and Pope in their flight of July 8. The duration achieved on this occasion was 11 hours, 7 minutes, and 18 seconds, and the distance 1525.189 kilometers (947.705 miles).

The altitude record for a seaplane with 2000 kilograms was made at San Raphael, France, by Lieutenant de Vaisseau with a Paris C.A.M.A. plane with two Jupiter-Gnome engines of 480 h.p. each, on August 18, and was 4684 meters (15,368 feet). The American altitude record was made by Lieutenants Connell and Rodd, U. S. N., in a P. N. plane with two Packard 600-h.p. engines at San Diego, Cal., August 18, and was 2008 meters (6588 feet). The world's record for speed for 100 kilometers went in 1927 to Switzerland, being taken by Richard Wagner in his Dornier Merkur plane with a B.M.W. 500–600-h.p. engine, at Altenheim, July 18, and was 190.435 kilometers per hour (109.112 miles). Lieutenants Connell and Pope, in their flight on July 8, made the American speed record for 100 kilometers of 148.92 kilometers per hour (92.53 miles). For 500 kilometers they also made an American record of 145.68 kilometers (90.52 miles) per hour, and for 1000 kilometers, 142.74 kilometers per hour (88.69 miles).

The United States Navy aviators, Lieutenants Connell and Rodd, in the flight on August 18, achieved a world's record for the greatest pay load carried to an altitude of 2000 meters (6651.7 feet) when in a P.N.–10 plane with two Packard 600-h.p. engines, at San Diego, Cal., on August 18, they carried 3504 kilograms (7726 pounds).

ENGINES. Possibly the most significant item in aviation in 1927 was the development of the air cooled engine of large horse power. This was employed in new aircraft built for various purposes, and by the reduction of the unit weight of engine secured greater efficiency and power. Large engines of this type were built both for military and naval planes and extensively for commercial aircraft as used in mail and passenger flying. The Wright Whirlwind motor used by the various trans-Atlantic and other fliers was an air-cooled radial engine. It was used by Lindbergh, Chamberlin, Byrd, Maitland, Smith, Goebel, Jensen, and Black in flights already mentioned. These engines resulted from experiments initiated as early as 1916 by Charles L. Lawrance, and from 1920 to 1927 seven successive models of air-cooled engines were developed which underwent practical tests and service in the United States Army and Navy Air Service.

In 1927 it was estimated that some 540 commercial airplane engines, all of which were of the air-cooled type and most of which were over 100 horse power, were built in the United States. One of the most interesting of the engines of the year was the 400 horse power air-cooled radial type which was used extensively in connection with air mail operations. On the Boeing Airtransport Company's lines between Chicago and San Francisco, the Wasp engine was employed, and, having less weight than the Liberty engine on account of its air-cooling, more pay load could be carried.

COMMERCIAL AVIATION

AIRPORTS. One of the great developments of the year in the United States was the establishment not only of improved airway facilities, but also of airports. In a report by the Aëronautics Branch of the Department of Commerce, issued on July 15, 1927, it was stated that there were approximately 864 airports and intermediate landing fields permanent in character, this number including only those sites which had been marked in some way and which had more or less facilities for airplanes. In the year previous there had been established over 52 new airports, and it was estimated at the end of 1927 that there were in use about 1000 airports and intermediate fields well distributed over the United States. The 864 fields referred to included 267 municipal, 163 commercial and private airports, 124 Department of Commerce intermediate fields, 287 miscellaneous intermediate fields, 81 Army, Navy, and National Guard fields, one Treasury, and one Agricultural field.

The Department of Commerce lighted and marked intermediate fields at the end of 1928 would amount approximately to 262 as compared with 124 on July 1, 1927. In addition 93 municipal fields were proposed; while the Department of Commerce had on record some 3000 unimproved fields throughout the country on which landings or take-offs could be made.

Among the municipal airports that of Buffalo, covering 518 acres and equipped at a cost of $727,255, was a striking example; while the city of Chicago had laid out a great airport with an eight direction runway system, complete night lighting, spacious hangars, and other equipment. Oakland, Sacramento, and San Francisco also were developing air terminals during the year, the last named being referred to below in more detail. Portland, Oregon, was using Swan Island as an airport; while at New Orleans, La., Callender Field had been developed. Cleveland, Ohio, was improving a well designed airport during the year; while Schenectady, N. Y., had a commercial airport, and Baltimore had determined to construct a municipal airport. Kansas City, Mo., voted for a municipal airport which was put under way.

Many other cities were providing airports of improved type and it was estimated that by the end of 1928 a thousand airports would be in operation, a large proportion of which would be municipal. In addition numerous cities and towns were being air marked, and one large company alone had painted city names on more than 4000 of its stations.

The Department of Commerce took over 92 fields in the Post Office Department during the year, 32 of which had been established in the fiscal year 1927, but a number more were added before the close of the calendar year, and others planned for 1928. Beacon lights were placed on a number of airways; while the intermediate fields were well lighted not only as marks, but in case of inclement weather or for forced landings or temporary stops.

In May the city of San Francisco opened a municipal airport at Mills Field. In seven and one half months there were 2895 flights and landings involving 4560 passengers. There was a continual growth of business each month, that for December nearly doubling that of November. As indicating the development and appreciation of this airport the following table giving the monthly statistics is of interest:

	Flights and Landings	*Passengers*
May	13	15
June	19	17
July	57	85
August	374	601
September	371	673
October	638	1,091
November [a]	508	756
December	920	1,322
Total	2,895	4,560

[a] Decrease due to rain.

New York suffered from having no municipal airport and during the year active measures were being taken by national and local authorities to supply this need, but without any definite action.

During 1927 the Aëronautics Branch of the Department of Commerce began to function under the provisions of the Air Commerce Act of 1926 which afforded important encouragement and support to aëronautics though without direct subsidy. William P. MacCracken, Jr., had been appointed assistant secretary of commerce in charge of aviation, and on July 9, announcement was made of the appointment of Clarence R. Young of Iowa as director of the Aëronautics Branch, in the Department, created by Congress. There were organized two new units, one for the promulgation and enforcement of air regulations and the other for the collection and dissemination of information on civil aëronautics. The Air Regulations Division was specifically charged with the inspection, registration and licensing of aircraft, the examination and licensing of pilots and mechanics, the identification of all aircraft not licensed, and the promulgation of air traffic rules.

The Aëronautics Branch accordingly promulgated air regulations and appointed experienced aircraft and engine inspectors to form the nucleus of a force which within a year was expected to reach fifty. A medical director was named to organize the work of giving physical examinations to pilots and applicants for pilots' licenses and about 200 physicians at various points throughout the country were designated as medical examiners. Ten new airplanes were purchased or contracted for, of which five were placed in operation. During the year the work of examinating applicants for licenses was proceeding, but not all the airmen in the country had applied for license and applications had been submitted for only a small portion of the aircraft in operation. It was estimated that additional civil planes were being placed in operation at the rate of over 100 a month which would increase the problem of bringing all civil craft and their operating personnel under the system of registration and inspection. In 1927 the Department of Commerce received 2762 applications for airplane licenses and had issued 655 with 1645 others pending.

The U. S. Department of Commerce was active also in laying out and providing properly illuminated airways, for the economical use of the airplane in commercial transportation demands flying by night as well as by day and in all vicissitudes of weather and season. It was proposed accordingly to furnish to air traffic those aids which would result in the greatest degree of efficiency. On June 30, 1927, there was 4121 miles of lighted airway, including the 2041 miles on the transcontinental airway which was transferred on that date from the Post Office Department to the Aëronautics Branch of the Commerce Department. (See LIGHTHOUSES.)

Acording to the Aëronautics Branch of the Department of Commerce more than 12,000,000 miles were covered in civil flying in the first half of 1927. There were carried 395,000 passengers, 621,236 pounds of mail and 1,045,222 pounds of express matter. Airplanes of new design were rapidly replacing the war surplus types which had been doing service. New air routes were being charted in all parts of the country.

AIR MAIL. The United States at the end of 1927 had by far the most extensive air mail system in the world and it was estimated authoritatively that on June 30, 1928, there would be about 24,500 miles of scheduled flying by air transport lines each 24 hours. This mileage includes the air mail contract lines in operation at the end of 1927 and the routes for which contracts had been awarded but which at that time were not yet in operation.

The increase in the amount of mail carried by the United States Post Office for three years is shown in the accompanying table which also indicates the number of miles traveled with mail.

Fiscal year	*Miles traveled with mail*	*Letters carried (40 per lb.)*
1927	2,829,553	22,385,000
1926	2,256,137	14,145,640
1925	2,076,764	9,300,520

When it is recalled that the first air mail route was established between Washington and New York on May 15, 1918, and that in that year only 6000 miles of flight with mail were recorded, the growth of the air mail may be appreciated. Its increase, which must be considered in spite of heavier charges than for rail service, was continuous during the year. There was also an increase in safety, there being only one fatality in the fiscal year of 1927; while in 1926 and 1925 there were two fatalities each year.

On July 1 the U. S. Post Office Department relinquished its activities in commercial transportation, turning over to private companies on a contract basis the carrying of the mail, the last air route passing out of its control on September 1. This transfer of the air mail routes from government to private operation was accomplished without confusion and in a way satisfactory to the Post Office Department and the general public. The contracts were awarded for the most part to strong and competent organizations. Thus the Boeing Air Transport for six months maintained nearly whole-time service over the Rocky Mountains on the 1900 mile route between Chicago and San Francisco, transporting not only the mail but also passengers daily, at least for parts of the distance and not infrequently for all of it, the passage from Chicago to San Francisco costing $200, and requiring less than 24 hours, in place of three days by train. This important arrangement had reduced the time for mail between New York and San Francisco to 35 hours. The trip between Chicago and San Francisco was possibly the most difficult encountered in any commercial air route in the world as not only must distance be traversed but extremes of altitude and temperature. The journey was divided into nine stages, marked by appropriate landing places and transfer points, at some of which additional mail from feeder lines or railways was received. The route was illuminated by beacons, making possible night flying, and the airplanes were carrying increasingly greater loads. From Chicago the National Air Transport carried the air mail in seven and eight hour scheduled flights to Hadley Field, N. J., 25 miles from New York City. From Cleveland the Colonial Air Transport operated a passenger and express service to Buffalo, which it planned to extend in 1928 to Albany, taking in the various cities along the Mohawk Valley en route and connecting with feeder lines from New York and Boston.

AIRCRAFT PRODUCTION. The year 1927 was a very favorable one for the American aircraft industry and there was practically an increase of 100 per cent over the total number of airplanes produced in 1926. In fact it was the first year in the history of the industry when the output of planes for commercial use had exceeded those designed for the military and naval services. A special survey made by the United States Department of Commerce indicated that 1186 airplanes were manufactured during the calendar year 1926, and of these 636 were commercial planes. While there were no definite and official figures for 1927 available at the end of the year, yet it was estimated that between 2000 and 3000 planes were manufactured including those for commercial aviation as well as those for military and naval service.

An analysis made by the magazine *Aviation* from data collected from the larger producers of airplanes during the year indicated that 1653 commercial planes were produced in 1927, and taking into consideration the military and naval aircraft the total production of the year was 2353. There were 364 airplanes accepted by the United States Navy Department during the calendar year 1927; while the United States Army Air Corps received 289 planes during the fiscal year ended June 30, 1927.

In 1927 there were 103 establishments manufacturing airplanes as compared with 67 in 1926 which was an increase of 23 over the previous year. In the State of California there were 21 establishments producing commercial airplanes; while Ohio with seven establishments produced 460 planes. Of 700 planes manufactured in the year ended Sept. 1, 1927, 348 were built in California and Washington. The Pacific Coast industry gave employment to 1265 persons who received wages amounting to $1,933,600 and the output of planes was valued at $4,537,825. The area around New York, of course, was the productive centre of the industry, the plants of the Wright Aëronautical Corporation, the Fairchild-Caminev Engine Corporation, the Curtiss Aëroplane and Motor Corporation, the Atlantic Aircraft Corporation, the Chance Wright Co., the Loening Co., and G. M. Bellanca, all being located in the metropolitan district, while the Pratt & Whitney Co., manufacturing the Wasp and Hornet engines, was at Hartford, Conn., and the Anthony H. G. Fokker Co. had determined to build at Wheeling, W. Va.

GUGGENHEIM SAFETY COMPETITION. On April 30, 1927, the Daniel Guggenheim Fund for the Promotion of Aëronautics announced the Safe Aircraft Competition for prizes totaling $150,000 and this straightway aroused great interest among European and American aircraft manufacturers and designers. On the first day on which entries could be received five British and five American builders made application and additional entries were expected before the competition closed on Oct. 31, 1929, or at any time prior to that date if the trustees of the fund should consider that the object of the competition had been achieved. Aircraft entered in this competition were designed to provide certain characteristics and capacities which were required by technical experts of aërial safety. Many of these characteristics had been accomplished in individual planes, but the object of the competition was to coördinate the various elements and principles and develop a safe airplane which would be acceptable to the general public. The minimum performance requirements were: A. Minimum flying speed 35 m.p.h. b. Minimum gliding speed 38 m.p.h. c. Top speed of 110 m.p.h. d. Initial climb of 400 ft. a minute. e. Landing run of 100 ft. f. Approach over an obstruction 35 ft. high, and coming to rest 300 ft. from the base of the obstruction. g. Take off in 300 ft. h. Take off over an obstruction 35 ft. high in a distance of 500 ft. from base of obstruction. i. Flattest glide at 8° to the horizontal. j. Steepest glide at 16° to the horizontal.

BIBLIOGRAPHY. Among the more important works in aëronautics published during the year were the following: Adventure and War: Roald Amundsen and Lincoln Ellsworth, *First Crossing of the Polar Sea;* Charles A. Lindbergh, *We;* H. A. Toulmin, *Air Service, A. E. F., 1918;* Floyd Gibbons, *The Red Knight of Germany,* the story of Baron Richthofen; Roald Amundsen, *My Life as an Explorer;* Alan Cobham, *My Flight to the Cape and Back, Australia and Back;* Oliver Stewart, *Strategy and Tactics of Air Fighting;* J. M. Spaight, *Aircraft and Commerce in War, Air Power and War Rights;* Walter Mittelholzer and others, *By Airplane Towards the North Pole;* Jefferson Davis, *World's Wings;* J. Laurence Pritchard, *The Book of the Aëroplane.* Aërodynamics: Walter S. Diehl, *Engineering Aërodynamics;* E. P. Warner, *Aërodynamics and Airplane Design.* Balloons and Airships: Thomas L. Blakemore and W. Watters Pagon, *Pressure Airships;* Lehmann and Mingos, *The Zeppelins;* C. P. Burgess, *Airship Design;* "Neon," *The Great Delusion.* Landing Fields and Airways: Donald Duke, *Airports and Airways;* Lowell Thomas, *European Skyways.* Flying: Captain Horatio Barber, *The Aëroplane Speaks, Aërobatics;* Lord Thomson, *Air Facts and Problems;* V. W. Page, *Modern Aircraft.* Legal Aspects of Aëronautics: Carl Zollman, *Law of the Air;* Rowland W. Fixel, *Law of Aviation.* Historical: L. Lat. Driggs, *Heroes of Aviation.*

Among the important books of the year published in England were the following: *All the World's Aircraft,* the seventeenth year of this publication which is edited by C. G. Grey, editor of *The Aëroplane;* the Rt. Hon. Sir Samuel Hoare, M. P., Secretary of State for Air, *India by Air;* Major C. C. Turner, *The Late Flying Days;* James M. Spaight, *The Beginnings of Organized Air Power;* C. L. M. Brown, *Conquest of the Air;* J. B. Hart and W. Laidler, *Elementary Aëronautical Science.*

AËROPLANES, See AËRONAUTICS.

AFGHANISTAN, af-găn′-i′-stan′. An independent kingdom of Asia between the parallels 29° and 38° 20′ north latitude and 61° and 72° east longitude with a narrow strip extending to 75° east. The estimates of the area vary from 245,000 to 270,000 square miles. The population is estimated at about 12,000,000 although some authorities place it at about half that number. Capital, Kabul, with a population of about 100,000. Other important towns are Kandahar, Herat, and Mazar-i-Sharif. The Afghan is the dominant race, and the chief tribes are the Durranis and the Ghilzais, numbering about 2,200,000. The prevailing languages are Persian and Pushtoo, and the dominant religion is Islam.

In the spring of 1927 it was reported that Afghanistan was departing from its traditional policy of nonintercourse with other nations. Evidence to support this theory was the appointment of a consul, Bashir Ahmad, to the city of Karachi, India. Heretofore, Afghanistan commercial interests had been represented in India by a trader who, in addition to his business in piece goods and general lines of merchandise, acted as his government's trade agent. It was also reported that during the past two years the highways of the country had been greatly improved and that more roads were being built during 1927. As Afghanistan has no railways, development of motor roads there was of prime necessity. Evidences were also present of the government's intentions of building railways. Afghanistan was deeply concerned with the exploitation of its natural resources, and, although no complete survey of the country's resources had been made, it was known to be rich in coal, iron, and precious stones, and to possess large agricultural and pastoral areas.

The country has no financial institutions and, therefore, all commercial transactions are conducted through the medium of currency, principally rupees. Notwithstanding the primitive methods of doing business, the country's foreign commerce amounts to $10,000,000 annually, equally divided between imports and exports. The country's fruits, melons, raw wool, shawls, and rugs are exchanged for cotton piece goods, yarn, manufactured leather goods, tea, metal manufactures, wearing apparel, dyes, automobiles, and lac.

Since 1922 the government of Afghanistan has been a constitutional monarchy with legislative and state assemblies, and a cabinet which is presided over by the king himself. The reigning king in 1927 was Amanullah Khan, who ascended the throne as Amir, when his father was assassinated in 1919. In 1922 he changed his title from Amir to King. Nothing of national or international importance regarding Afghanistan was published in the press during the course of the year.

AFRICA. The various divisions of Africa in this volume are discussed under their own heads. See articles on the respective countries and territories, including ETHIOPIA; KENYA; EGYPT; MOROCCO; TUNIS; SOUTH AFRICA, UNION OF, etc. See also the articles ANTHROPOLOGY; ARCHÆOLOGY; and EXPLORATION.

AGRICULTURAL EXPERIMENT STATIONS. The development of research at the State agricultural experiment stations throughout the United States continued during the year under the Federal appropriations. These appropriations increased as a result of the Purnell Act by $480,000, or $10,000 for each of the stations. The amount under that act totaled $1,440,000 for the fiscal year ended June 30, 1927, and an equal amount was available under the Hatch and Adams Acts of 1887 and 1906 respectively. Each State received, therefore, $60,000 for its experiment station, or a total for all of $2,880,000. In addition, Federal experiment stations were maintained in the territories and insular possessions—Alaska, Hawaii, Porto Rico, Guam, and the American Virgin Islands, with a varying allotment aggregating $233,980.

As in the past, most of the States generously supplemented the Federal appropriations, the amounts varying all the way from a few thousand dollars up to several hundred thousand. Fifteen States each provided over a hundred thousand dollars for their experiment stations. The aggregate State appropriations were over $9,000,000, making the combined Federal and State support approximately $12,000,000 for the year. The stations had some 5000 active research projects, covering the broad field of agricultural production, agricultural economics, rural sociology, and home economics, including the practical and the scientific aspects of the problems involved. More and more their investigations were leading the stations into the field of original inquiry in the sciences related to agriculture, in order adequately to understand their problems and secure exact information which can be reliably and intelligently applied to practical questions.

To assist in outlining the research field in rural sociology and formulating projects in that subject, as provided for under the latest Federal appropriation act for experiment stations, an Institute on Research Methods in Rural Sociology was held at Purdue University from April 4 to 8 inclusive, 1927. It resulted from a movement sponsored by the research workers themselves and was widely attended. It was considered a marked success and a significant step in the development of research in this relatively new field.

The U. S. Bureau of Education was granted an appropriation to make a study of the organization, administration, and work of the land-grant colleges, with which the agricultural experiment stations are connected. The stations were to be included in this survey, plans for which were under way, with the advice and assistance of specialists whose services had been secured.

There was an unusual number of changes in directorship during the year, the directors of the Alaska, Massachusetts, New York, Texas, and West Virginia Stations resigning to retire or engage in work elsewhere. F. B. Morrison of Wisconsin became director of the New York Stations. Dr. Thomas F. Hunt, for many years director of the experiment station in California, died April 25, 1927. Dr. Charles E. Marshall, a bacteriologist of note, connected with the Massachusetts Station, died March 20, 1927.

A gift of $130,000 for the endowment of a research professorship in forest soils was made to Cornell University by the Charles Lathrop Pack Forestry Trust, together with additional funds for operating expenses in the advanced line of investigation to be undertaken. The enterprise will be assigned to the College of Agriculture. It constituted a new development in forest research in the United States, and was to deal primarily with the chemistry and biology of soils.

An experimental farm connected with the University of Virginia, bequeathed by the late Graham F. Blandy, was under development, with Dr. O. E. White of the Brooklyn Botanic Garden as director. Five research fellowships were established, open to graduates in biology or agriculture from standard colleges, the appointees to register for advanced work in the University.

A bequest of the late Mrs. Elizabeth Blee Frasch of $1,000,000 to establish the Herman Frasch Foundation for Chemical Research, the income to be devoted to research in agricultural chemistry, was upheld by the New York Court of Appeals. The experiment stations, as leading exponents of research in that field, were entitled to share in the grants under this bequest.

The Dominion Grain Research Laboratory has been established in Winnipeg, Manitoba. It is under the supervision of the Board of Grain Commissioners, and is designed to assist in the solution of technical problems. It is equipped for investigations in milling and baking, with laboratories for general research, and is conducting some coöperative investigations on the value of tough and dried grains, under the supervision of the Canadian National Research Council.

Plans were approved for the early establishment of a German National Tobacco Research Institute, near Karlsruhe. A grant of 150,000 marks from the National German Government and 50,000 marks from the State of Baden was contributed for the operation of the institute during 1927. Among the problems to be studied are those relating to cultural methods, fertilizers, and the introduction of foreign tobacco strains.

An institute for rubber research was incorporated by the legislature of the Federated Malay States and established. It is financed by government funds and is controlled by a board representing both the government and the rubber-growing interests. It will concern itself with chemical and physical work on soils, latex and preparation of rubber, plant nutrition and physiology of growth, pathology, and similar matters relating to the rubber industry.

Consult also *Report on the Agricultural Experiment Stations, 1926.* U. S. Department of Agriculture, Office of Experiment Stations.

AGRICULTURAL EXTENSION WORK. Coöperative extension work in agriculture and home economics was carried on in the 48 States by the U. S. Department of Agriculture and the State agricultural colleges under the Smith-Lever Extension Act of May 8, 1914, and related Federal and State legislation. Through this system over 4,000,000 instances of the adoption of improved practices on the farms and in the farm homes in 1926 were reported. These were brought about largely by the successful conduct of practical demonstrations to farmers and their families under the direction of the extension agents and through meetings, tours, campaigns, press articles and other activities of the extension forces. The county extension agents in every State coöperated with local committees in studying the economic needs of their counties and helped to organize programmes of work based on such needs in 31,422 communities. In marketing of farm products extension agents gave assistance to about 425,000 farm families and more than 3000 coöperative associations, which did a business of $232,000,000 at an estimated saving to farmers of $16,000,000. The work among the farm women related to clothing, foods, nutrition, house furnishing, home management, health and sanitation. The women made about 320,000 demonstrations of improved home practices, more efficient local leadership among farm women was developed and 14,800 community clubs with 285,000 members were in operation.

The work among farm youth increased in variety and importance. Over 40,000 4-H clubs enrolled about 600,000 boys and girls, who carried on demonstrations on the farms or in the farm homes with the assistance of about 50,000 volunteer local leaders. This work included the growing of corn, cotton, potatoes and other field, truck and orchard crops; the raising of high quality livestock and standard-bred poultry; canning of fruits and vegetables, making of garments, food preparation, beautification of home grounds, etc. For the first time a national 4-H club camp was held at Washington, D. C., in June, 1927. Two boys and two girls from each State, accompanied by two State leaders or assistant leaders, were invited to attend. Forty States were represented in this camp, including all regions except the far West. A conference on club problems and leadership training was held at the same time. There were also visits to the Government departments, trips about Washington and vicinity, inspirational addresses by prominent speakers and recreation. Over 1000 boys and girl belonging to 4-H clubs in 42 States attended the International Livestock Exposition at Chicago in 1927, where a national club congress was held and prizes were given in various competitions.

Emergency situations in various sections of the country in 1927 brought out the great usefulness of the extension service in times of distress. The sharp reduction in the price of cotton in the fall of 1926 brought acute financial trouble to many farmers in the South. This led the extension agents there to push measures for immediate relief and at the same time to emphasize the importance of a safe farming programme to prevent recurrence of such disasters. The fall seeding of oats and wheat where practicable was urged as an immediate relief measure. The planting of more corn and soy beans in the spring, the growing of potatoes, sweet potatoes and truck as cash crops, increase of dairy cattle and poultry and the production of more of the family food supply were stimulated with beneficial results.

The spread of the corn borer in the Great Lakes region and the consequent threat to the corn crop in the corn belt led Congress to appropriate $10,000,000 for an intensive campaign to control this pest in the infested area. The Extension Service of the Department of Agriculture and its coöperative agents in Indiana, Michigan, New York, Pennsylvania and Ohio were drafted to conduct the educational features of this campaign. These included the holding of field meetings and demonstrations, preparation and distribution of publications, posters, motion pictures, lantern slides and exhibits, and the maintenance of a news service in all the daily and weekly papers in the area. The work was carried on in 82 counties by the county agricultural agents, assisted by the regular staff of entomologists, agricultural engineers, editors and supervisory officials. Temporary assistant county agents and clerks were also employed. It is intimated that 90 per cent of the farmers voluntarily carried out the control work imposed upon them.

In Florida the extension forces in the counties laid waste by the hurricane in September, 1926, materially aided the farmers by encouraging the planting of gardens and developing quick resources of home-grown food supplies.

In connection with the Mississippi Valley flood the extension organization in Mississippi, Louisiana, Arkansas and Missouri coöperated closely with the Red Cross in strengthening the levees, aiding in the evacuation of the flooded territory and obtaining supplies for the refugee camps. When the waters receded the county agricultural agents actively aided the planting of crops, the rehabilitating of homes and the securing of seeds, livestock and supplies. The home demonstration agents helped the women to put their homes in good sanitary condition and to get home-grown food as soon as possible. They also obtained large amounts of canned fruits and vegetables and other supplies as contributions from farm families outside the flood area. Near the close of the year extension agents in Vermont did much to relieve the distress of people in the flood area there.

The demonstration work on the Federal reclamation projects, now carried on through the Extension Service of the Department of Agriculture, centred largely around the development of livestock industries and stressed improved feeding practices, pure bred sires, sanitation and organized marketing of farm products.

The special Federal appropriation of $50,000 for forestry extension work greatly stimulated the activities of extension foresters and county agents in 30 States. Nearly 4000 forest planting demonstrations were reported and measures were taken to improve woodland management and forest protection.

The motion picture laboratory of the Department of Agriculture had nearly 400 films, and a large number of these were in active circulation. The attendance reported at showings of department films totaled 4,300,000.

The Office of Exhibits made exhibits at 34 State, interstate and national fairs, and at the World's Poultry Congress at Ottawa, Canada.

For the fiscal year beginning July 1, 1927, about $500,000 was appropriated for the Extension Service in the United States Department of Agriculture. Of the $20,400,000 used in the States about $1,050,000 was derived from direct appropriations to the Federal Extension Service, $4,580,000 from the Smith-Lever Act and $1,300,000 from the supplementary Federal fund, making the total amount of the Federal contribution $6,930,000.

This was met by approximately $13,468,000 from sources within the States, including $5,400,000 to offset the regular and supplementary Smith-Lever fund, $2,366,000 additional State and college funds, $4,673,000 from counties and $1,029,000 from farm bureaus and miscellaneous sources. About $10,440,000 was used for the demonstrations and other activities of the county agricultural agents and their leaders. Much of their work bore on the problems of the farm home but $3,527,000 was allotted to the work of the home demonstration agents. About $1,215,000 was used for special work among boys and girls, about $3,850,000 for the tasks of the specialists in various branches of agriculture and home economics, $867,000 for administration and $250,000 for publications.

On June 30, 1927, there were in the 48 States 2263 white county agricultural agents, 910 home demonstration agents, 153 paid county leaders of boys' and girls' club work, and 977 specialists in the various branches of agriculture and home economics with headquarters at the agricultural colleges.

The white agents did much effective work which directly benefited the negro farmers and their families, but in the Southern States there were also 177 negro agricultural agents, 177 negro women agents and six negro club agents. The work in each State was administered by an Extension Director, with numerous State and district leaders. Including the supervisory officers and their assistants 5055 persons trained in agriculture or home economics were employed in the extension work in the States in 1927. These public agents were assisted by over 200,000 voluntary local leaders in rural communities in the several States.

The general interests of the extension work throughout the United States were promoted by the Extension Service of the United States Department of Agriculture under the supervision of the Director of Extension Work. This Service included (1) the Office of Coöperative Extension Work, which deals with the Department business under the Smith-Lever Act and related Federal legislation, (2) the Office of Exhibits, which makes agricultural exhibits at State, interstate and international fairs, (3) the Motion Picture Laboratory, which prepares scenarios and films on subjects connected with the work of the Department, and (4) the Office of Agricultural Instruction, which prepares publications on agricultural subjects for the use of secondary and elementary schools.

Farmers' institutes were held in 1926 under official supervision in 12 States. In nine States the agricultural colleges held 2130 institutes with an attendance of 969,864 at a cost of about $91,162. In three States where the institutes were managed by the State departments of agriculture 719 institutes were held with an attendance of 192,756 at a cost of $101,474. Over 61,400 demonstrations were conducted by negro farmers and 179,500 negro women adopted improved practices through home demonstration work. About 21,960 negro boys and 38,230 negro girls were enrolled in clubs.

In Hawaii extension work was continued by the Federal Experiment Station and in Porto Rico by the Insular Bureau of Agriculture, which maintained four district inspectors, 15 deputy inspectors and 33 agricultural agents in the municipalities. A publication entitled *Revista de Agricultura* was issued. The Federal Station in the American Virgin Islands had an extension agent on the Island of St. Thomas.

GREAT BRITAIN. In England and Wales extension work was continued through the County Agricultural Councils on plans approved by the Ministry of Agriculture and Fisheries. In 1926, 324 men and women gave their whole time to extension instruction. Of these 49 were agricultural organizers in 53 counties, who did demonstration, lecture and advisory work and directed the activities of specialists. There were 77 instructors in agriculture, 77 in horticulture, 48 in dairying, 36 in poultry, 23 in dairying and poultry combined, and 15 in farriery, beekeeping, veterinary science, farm accounting or manual processes. The women's rural institutes continued to grow in numbers and popular favor. While chiefly attended by the married women, there were junior groups in a number of counties. These institutes are doing much to provide training in practical and technical subjects and to improve village life and are aiding local education committees in child-welfare work.

The courses and lectures given in connection with the institutes deal not only with home economics and handicraft but also with English literature, history, citizenship, arithmetic, household accounts, singing and music. Continuation classes for rural boys and girls from 14 to 16 years old were planned by the interdepartmental committee of the Ministry of Agriculture and the Board of Education, acting in an advisory capacity to aid local education authorities. The plan involves evening, afternoon and whole-time courses during the winter months, in English, history, geography, arithmetic, farm book-keeping, nature study, and craftsmanship, and in livestock, poultry, dairying, horticulture, beekeeping and home economics. The rural community councils, formed after the World War to aid persons needing employment, now promote in a general way social, educational and industrial activities in the villages. Oxford County was a pioneer in this work and was soon followed by Kent County. In 1926 there were councils in 10 other counties. In Kent County over 20 organizations are represented in the council.

In Scotland the women's rural institutes, begun in 1917, had spread throughout the country. In October, 1925, there were 420 institutes with 27,500 members. They are grouped in areas consisting of several counties. A committee in each area elected by delegates from the institutes, receives and administers funds, encourages the work of the institutes, elects two members to serve on the central committee and convenes meetings of the institutes within the area. The central committee meets with a representative of the Board of Agriculture acting in an advisory capacity, to receive and administer funds and if necessary to raise funds for the institutes. The Board of Agriculture disseminates information useful to the institutes, helps to form new institutes and encourages those in operation. For the past five years the Board has granted to the institutes 3000 pounds a year, and thus has met all their expenses. It is now expected that they will be self-supporting.

In Ireland the organization known as United Irish Workers, founded in 1910 as a branch of the Irish Agricultural Organization Society, performs to a considerable extent functions similar to those of the women's rural institutes. A monthly magazine is published by the board of managers of the association.

CANADA. In the several provinces extension work was continued by public agents and through short courses at colleges and boys' and girls' clubs. In British Columbia the work of the pig, calf and poultry clubs was actively promoted. In the Mission district particularly the poultry clubs were very successful under the influence of the poultry instructor and the competitions at the fair of the Mission Agricultural Society.

In the province of Quebec boys' and girls' swine clubs were stressed with a view to stimulating the bacon hog industry. A special feature at the fairs was the car-load-lot entry consisting of at least 60 hogs furnished by one or two clubs. In Nova Scotia as the result of the report of an agricultural inquiry committee in 1926, extension activities were greatly stimulated. The work was reorganized under the Ministry of Natural Resources. An extension director was appointed under whom were 10 agricultural representatives, four of whom worked in single counties and the other in two or more counties.

AUSTRALIA. The extension work in South Australia was reorganized in 1926 under the Department of Agriculture. Five agricultural instructors were appointed and assigned to districts including five to 15 counties. Their duties included lectures to representative agricultural bodies, the holding of classes for adults on special agricultural subjects, the establishment of demonstrations by farmers on their own farms, the organizing of crop and other competitions, and the giving of information and advice to public school teachers and to farmers.

In Victoria radio lectures on agricultural subjects were broadcast three nights a week by specialists of the Department of Agriculture. In Western Australia the courses on subjects in home economics were continued by the Department of Agriculture in cooperation with Perth University. Two lectures were given each morning during the course, the afternoon and evening being left free for excursions and entertainments.

Union of South Africa. Since Apr. 1, 1926, boys' and girls' club work had been under the supervision of the division of agricultural education and extension in the Department of Agriculture. Such clubs inaugurated by the Transvaal Agricultural Union were known as Prosperity League Clubs. This name later was adopted for clubs organized anywhere in the Union. Close coöperation with the rural schools is maintained. The teachers organize and manage the clubs, which carry on demonstrations, contests and other activities in much the same way as similar clubs in the United States.

The Transvaal Agricultural Union also established a women's branch with local organizations which do work in educational, civic, social and commercial lines, corresponding in a general way to the activities of the women's institutes in England.

India. The agricultural departments of the various provinces continued to employ extension workers in coöperation with agricultural associations, coöperative societies and other agencies.

France. The extension organization under the Ministry of Agriculture included inspectors-general in the eight agricultural regions, directors of agricultural services in the several departments (counties), and professors of agriculture or special subjects. Work in agriculture and home economics for women and girls was continued. Agricultural associations also carried on much extension work.

Belgium. The Ministry of Agriculture continued to carry on extension work through numerous specialists in agriculture, veterinary medicine, forestry and farm housekeeping. A unique feature is the caravan farm-household management school, introduced after the World War to hold classes for farmers' daughters in the devastated regions of Flanders. Courses of three or four months and of shorter duration are held. Four vans about 23 feet long and 8 feet wide are used and are so placed as to form a large classroom, with two smaller rooms on each side. These rooms are furnished to represent a house with classroom, dining room, kitchen, bedroom, and dairy. Beginning with 1925 the League of Belgian Peasants added to its activities the organization of boys' clubs. Meetings largely attended by young peasants were held in the several provinces and several thousand boys were enrolled. These clubs work in close connection with the guilds of adult farmers. In the winter study sections are formed and in the summer there are excursions to experimental fields, expositions, etc.

Denmark. Extension work continued to be carried on by the Department of Agriculture, the Royal Agricultural Society, and about 120 local farm organizations.

The Netherlands. The Department of Agriculture carried on extension work through inspectors of agriculture. Advisers in agriculture and horticulture were located in the 11 provinces, together with specialists in dairying, animal husbandry, poultry and bee-keeping.

Sweden. Extension work continued to be carried on by over 200 advisers and experts employed by the 26 county agricultural societies, subsidized by the general government. The young farmers' league continued its activities, which resemble those of boys' and girls' clubs. Local groups are formed in the several parishes, under the direction of boards of at least three adults. The league receives contributions from the government and the general agricultural society of Sweden. There are also grants from the Clara Lachman fund to provide for an exchange of speakers from Denmark, Norway and Sweden, and from the Rockefeller International Education Board to aid in training leaders.

Finland. The women's organization, known as The Martha Association, founded in 1899 was divided in 1925 into two bodies according to the use of the Swedish or Finnish language in any region. One of the main objects of these societies is to improve the economic condition of the small home by encouraging such industries as poultry raising, weaving curtains or doll making. The local groups have lectures, housekeeping courses, instruction in industries, excursions to farms and schools, and competitions at fairs. The work is supported by contributions from communes, agricultural societies, banks and individuals, together with a moderate annual subsidy from the government.

Germany. Every farmer is required to keep an account of his business and as a consequence the work of the farm bookkeeping bureaus has greatly increased. The bureaus organize bookkeeping on the farm or keep books for the farmer on the basis of weekly or monthly reports. They also encourage farm bookkeeping, especially on small farms, through special courses, lectures and sale of forms. In Prussia, Brandenburg, Saxony, Silesia and the Rhine province the itinerant schools of rural housekeeping were successfully continued without State subsidy. And in Prussia there were also rural continuation schools for girls.

Poland. Associations of the older and young farm women were doing useful work. The latter organized young women in the villages into clubs and helped them in acquiring the necessary preparation for their future work as farm wives. The clubs have lectures, theatricals, pageants, dances and excursions. In the winter a three-months course for training women to give instruction in sewing was held. The work among the young women has the collaboration and support of the Ministry of Public Instruction and various social organizations. The Association of Rural Young People included over 2500 boys' and girls' clubs with about 90,000 members and the Union of Polish Youth had over 100,000 members. These organizations had a variety of educational and recreational activities and issued many publications.

Czechoslovakia. The Association for the Interest of Rural Women, founded in 1918 and the Association of Rural Welfare, organized in 1925, were in successful operation. Over 30 per cent of the persons engaged in agriculture, silviculture and pisciculture in Czechoslovakia are women. These associations aid the farm women to perform their work intelligently on the farm and in the home, encourage modern practices and the use of improved implements, and promote the establishment of coöperative associations, day nurseries and libraries.

The Institute of Farm Bookkeeping and Rural Economy of the Republic of Czechoslovakia collects data on farm incomes, educates farmers in keeping accounts, and keeps the accounts of those farmers who pay fees. The general expenses of the institute are defrayed by the Ministry of Agriculture.

SWITZERLAND. The Swiss Peasants Union conducted extension work through traveling lecturers, who also gave oral and written information on agricultural subjects.

SPAIN. A Service of Itinerant Chairs was established by royal decrees of Oct. 18, 1926, and Mar. 24, 1927. The chairs were provided for in 12 regions, with headquarters in agricultural schools or associations, and were supervised by two inspectors-general. The chief of the chair may be assisted by specialists in the important branches of agriculture in the several regions. Experiments, demonstrations, analyses of soils, seeds, etc. will be made.

ITALY. The great interest of the present government in increasing agricultural production in Italy has led to financial provision for a larger number of itinerant teachers to instruct the farmers in intensive methods of agriculture and the use of new crops and improved implements.

Consult *Report of the Director of the Extension Service*, 1927, by C. W. Warburton (United States Department of Agriculture).

AGRICULTURAL LEGISLATION, UNITED STATES. On Feb. 11, 1927, the McNary-Haugen farm relief bill, introduced into Congress late in 1926 and described in the 1926 YEAR BOOK under *Agricultural Legislation*, passed the Senate by a vote of 47 to 39 after an amendment to include tobacco along with wheat, corn, swine, cotton, and rice as the commodities for which stabilization of farm prices was to be attempted. Passage in the House of Representatives followed on Febuary 17 by a vote of 214 to 178, but on February 25 the bill was vetoed by President Coolidge. In his veto message the President stated in substance that he did not believe the bill would prove to be economically practicable, and that it would discriminate against the large number of farmers whose products were not included under its provisions, and he included an opinion rendered by the Attorney General expressing the belief that in several respects the bill was also unconstitutional. He suggested that other plans before Congress offered promise of sound assistance to farmers "without these unconstitutionalities, invasions of executive authority, this contracting with packers and flour millers and other manufacturers, this overproduction with its inflation and inevitable crash, without this indirect price fixing, buying and selling, this creation of huge bureaucracies. They are, on the contrary, devoted entirely to the principle of building up farmer-controlled marketing concerns to handle their problems, including occasional surplus production, and applicable to all agriculture and not to a minor fraction," and he recommended the adoption of some such plan. In the few days intervening before the final adjournment of the session on March 4, no attempt was made, however, to pass the McNary-Haugen bill over his veto or to enact alternative legislation.

Upon the convening of the Seventieth Congress on December 5, President Coolidge's annual message again devoted considerable space to the agricultural problem and in particular to the agricultural surplus. He declared that while it is "impossible to provide by law for an assured success and prosperity for all those who engage in farming," and that "if acreage becomes overextended, the Government can not assume responsibility for it," none the less the Government can assist cooperative associations and other organizations in orderly marketing and handling a surplus clearly due to weather and seasonal conditions in order to save the producer from preventable loss. In his opinion, "a beginning could be made by setting up a Federal board or commission of able and experienced men in marketing, granting equal advantages under this board to the various agricultural commodities and sections of the country, giving encouragement to the cooperative movement in agriculture, and providing a revolving loan fund at a moderate rate of interest for the necessary financing."

The remaining days of December saw the reintroduction of the McNary-Haugen bill with some modifications, including its extension to all farm products, but retaining the equalization fee principle to which objection had been raised. A number of other measures proposing to relieve the agricultural situation in a wide variety of ways were also brought forward. At the close of the year it was expected that agricultural relief would again prove to be one of the major issues of the session, but as the radical differences of opinions which had thus far prevented legislation in this field seemed still to prevail, the outlook for ultimate agreement appeared to be correspondingly uncertain.

Despite the virtual deadlock on the problem of the agricultural surplus, considerable legislation along other lines was completed during the year. Prominent among this was the annual act making appropriations for the support of the Federal Department of Agriculture, discussed elsewhere (see AGRICULTURE, U. S. DEPARTMENT OF); a special appropriation of $10,000,000 to enable the Secretary of Agriculture to coöperate with the States, organizations, or individuals in the eradication of the European corn borer; and an act authorizing an appropriation of $8,600,000 to enable the Secretary to make loans to farmers in the drought- and storm-stricken areas of the Northwestern States and the cotton States for the purchase of seed grain, feed, and fertilizer. The last-named appropriation itself was included in a deficiency bill which failed of passage and hence was not available, but reduced emergency transportation rates to and from sections suffering from disaster were authorized in an amendment of the Interstate Commerce Act and Transportation Act of 1920.

Under a law signed March 4 discrimination against farmers' coöperative organizations by boards of trade and similar organizations was forbidden. A measure approved March 3 prohibited the destruction or "dumping" without sufficient cause of any perishable farm products received in interstate commerce or the District of Columbia by commission merchants and others, and required a true and correct accounting. The collection of additional cotton statistics by the Secretary of Agriculture was authorized and their dissemination regulated, and an amendment was adopted to the U. S. Cotton Futures Act for the settlement of disputes as to grades in future contracts. The agricultural Credits Act of 1923 was extended to cover the discount of notes, drafts, etc., based on agricultural crops being grown for market.

The importation of milk and cream into the

United States was regulated in an act signed February 15, designed to promote the dairy industry of the country and conserve the public health. Permits must now be obtained from the Secretary of Agriculture for milk and cream importations, based either on inspections by the Department or at its discretion on certificates by accredited officials of foreign Governments or a State or municipality of the United States.

A method for leasing the public lands of Alaska outside of the national forests and certain other areas for grazing purposes was prescribed in charge of the Secretary of the Interior. With a view to encouraging the breeding of riding horses suitable for the army, the Secretary of War was empowered to accept donations of horses for breeding and donations of money or other property to be used as prizes or awards at agricultural fairs, horse shows, and similar exhibitions.

The establishment and maintenance of a national arboretum on land within or adjacent to the District of Columbia, for purposes of research and education concerning tree and plant life, was authorized in an act signed March 4, although the acquisition of the land was delayed by failure to obtain the necessary appropriation until the enactment of a deficiency appropriation act approved December 22. This arboretum was to be developed with special reference to the agricultural, horticultural, and forestry interests of the Department, so correlated as to bring about the most effective utilization of its facilities and discoveries.

Much of the agricultural legislation which failed of enactment in the Sixty-ninth Congress was reintroduced into the Seventieth Congress, together with a considerable number of new projects. In addition to the agricultural surplus and similar relief bills already mentioned, these measures sought to provide for the disposition of the Government's holdings at Muscle Shoals, Ala., long a matter of controversy as potential producers of fertilizer and power; and included the "truth in fabrics" bill, designed to advise the consumer of the actual content of virgin wool; bills regulating transactions in future markets and the collection of statistics and the dissemination of crop predictions by official agencies; providing additional funds for agricultural extension work; and authorizing appropriations for various local experimental projects. Those measures were pending before the appropriate committees at the close of the year.

AGRICULTURAL MACHINERY. See AGRICULTURE.

AGRICULTURE. Substantial progress was made in 1927 in the recovery of American agriculture from the effects of post-war depression. This was evidenced in better balanced production, in advancing prices for several important products, notably cotton and cattle, and in further improvement in the relationship between the prices of farm products and the prices of other goods. As the U. S. Department of Agriculture pointed out, since June, 1921, when the depression was at its lowest, the unit buying power of farm products had increased more than 35 per cent. This means that agriculture had regained more than three-fourths of the buying power lost per unit of its products in the post-war price decline. Furthermore, the productivity of American agriculture, as measured by the output per farm worker, had increased greatly in the last few years. On fewer acres and with a farm population nearly 3,000,000 less than in 1919, agriculture since 1923 had averaged a larger volume of production than in the years immediately following the War. This suggests a reduction in the cost of production, despite continuing high overhead and labor expenses, a view strengthened by recent data made available. It is a reasonable inference that the farmers, through increased efficiency, were offsetting, to some degree at any rate, the effect of unfavorable relative prices. While the troubles of the farmer were not yet over, the balance of the year's developments was on the side of progress.

From 1919–24 there was a decrease of 13,000,000 acres in crop land in the United States, the first decrease ever shown by census statistics in the agricultural area. At the same time, there was a decrease in the number of farm animals, a decrease in the number of farms, and a falling off in farm population. Despite this, there was a very substantial increase in crop production in the period 1922–26, as compared with 1917–21, estimated at about 5 per cent. The output of animal products likewise showed an increase, estimated at fully 15 per cent. The result has been an increase in farm production more rapid than the rise in the country's population.

Two circumstances stand out prominently in the year, namely, the floods in the Mississippi Valley in the spring and in New England and New York in the fall, and the inauguration of an intensive campaign against the European corn borer. The latter was made possible by a Congressional appropriation of $10,000,000, in the endeavor to clean up infested areas and prevent the further spread of the insect. It was the most extensive campaign of its kind ever undertaken and met with a gratifying degree of success. See ENTOMOLOGY, ECONOMIC.

The great flood in the lower Mississippi Valley did enormous damage to agriculture, entailing great losses of stock and buildings and injury to land. The overflow covered 18,269,000 acres in the States of Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana, nearly 4,500,000 of which were planted to crops in 1926. It was estimated that 2,000,000 acres of this crop land would make no substantial money returns in 1927. More than half the cultivated land in the flooded area, or about 2,600,000 acres, is normally in cotton, about 1,100,000 in corn, 360,000 acres in hay, and 370,000 acres in other crops. The estimated livestock losses included 25,000 horses and mules, 50,000 cattle, 150,000 swine, and 1,250,000 poultry. The total loss by the floods was placed by the Weather Bureau from the compiled data at between $350,000,000 and $400,000,000. Since the lower Mississippi Valley is primarily a farming section, with comparatively few large cities on the lowlands, the flood losses were mainly agricultural. The U. S. Department of Agriculture, the State agricultural colleges and experiment stations, the agricultural extension service, and other agencies gave very practical assistance, while the American Red Cross and voluntary relief contributions lent relief to the flood sufferers. See FLOODS.

Severe floods occurred in the New England States and New York in the fall, causing heavy loss, particularly of farm buildings, livestock, and crops, and injury to farm lands. Vermont suffered particularly heavily. In that State it was estimated that 15,000 milch cows perished. Farmers of the flooded districts were said to be abandoning their farms to take up day labor. Their difficulties were emphasized by the fact that 50 per cent of the Vermont farms were mortgaged before the flood, and the farmers in the inundated regions were unable to raise more money on their property for rehabilitation purposes.

Two important scientific meetings of the year were the First International Congress of Soil Science, at Washington, June 13–22 (See SOILS), and the Third World's Poultry Congress, held at Ottawa, July 27 to August 4 (See LIVESTOCK). Both of these gatherings were largely attended and resulted in much benefit to technical agriculture.

The International Economic Conference at Geneva in May gave considerable attention to agricultural affairs such as agricultural problems in their international aspects, agriculture and the international economic crisis, the part played by coöperative organizations in the international trade in wheat, dairy produce, and certain other agricultural products, relation of labor costs to total costs of agricultural production, etc. The results of these considerations were published in the form of documents.

THE AGRICULTURAL SITUATION. Despite numerous evidences in the direction of improvement, considerable unrest continued to prevail among farming people and their organizations, with agitation for some measure of relief which would place agriculture in a more advantageous position in comparison with other industries. The passage of the McNary-Haugen Bill (See AGRICULTURAL LEGISLATION), early in the year, was a response to this feeling, and the veto message of the President was a close analysis of the objectionable features of the measure from the standpoint of economics and public policy.

Several quite extensive investigations were made of the agricultural problem by special agencies. The first of these was by the National Industrial Conference Board, a research organization of manufacturers and industrial associations, with a quite extensive report; which was followed in the summer by a study conducted by a Business Men's Commission on Agriculture, composed of representatives from the U. S. Chamber of Commerce and the National Industrial Conference Board. The latter commission advocated, among other things, gradual tariff adjustment to equalize more nearly the benefits of the protective tariff system as between agriculture and the manufacturing industry, the provision of a Federal Farm Board to assist in the stabilization of farm prices and production, a comprehensive land utilization policy, to be administered through an endowed national agricultural foundation, revision of State and local tax systems, strengthening of the rural banking system, revision of the railroad rates on farm products, and development of waterway systems.

A special committee of the Association of Land-Grant Colleges and Universities made a very extensive investigation of the agricultural situation, in which it had the assistance of forty-one experiment stations, the U. S. Department of Agriculture, various farm agencies, and a considerable number of economists. This was perhaps the most comprehensive, scientific and unbiased investigation that has been made of the subject. The report in condensed form was presented at the annual convention of the Association of Land-Grant Colleges and Universities at Chicago in November, 1927, and published by the Association.

The report declared that "agriculture in most parts of the country is still in an unsatisfactory condition." The industry has been more prosperous in some regions than in others, a fact which has confused the public and made more difficult the statement of the agricultural situation as a whole. It is asserted that incomes from farming since 1920 have not been sufficient to pay a fair return on capital and a fair wage for the farmer's labor, or to permit farm people to maintain a standard of living comparable with other groups of like ability. The situation is recognized as complex, and there is no one line of action which will bring about universally satisfactory conditions in the agricultural industry. A large number of adjustments are required.

From the above report and other sources, some of the features of the agricultural situation and factors which have contributed to the slow and uncertain recovery may be enumerated as follows:

(1) Overexpansion of agriculture, especially in the decade 1910–20, with greatly increased acreage of staple crops since then.

(2) Continued high production of many farm commodities in the face of expanded production in foreign countries, which lessened the demand for American exports.

(3) The sudden and severe decline in the general price level, which was disproportionately heavy in many agricultural products.

(4) Inherent difficulties in rapid change or adjustment of the farming system to meet demands, due to the fact that farming is not on an annual basis, owing to necessity for rotation systems, the time required for growth and marketing of livestock, requirement of special farm equipment, etc. Unorganized competition among widely scattered individual producers results in maladjustments and violent swings in the production of certain commodities.

(5) High marketing, distribution, and processing costs, which have persisted since deflation and increased in some cases, accentuating the wide margin between producers' and consumers' prices.

(6) Recurring surpluses of various crops, partly inherent in the season and partly due to overexpansion, without adequate provision for controlling or carrying such surpluses.

(7) Failure of farm expenses, labor and living costs, to decline as much as have prices of farm products, and disproportionately higher taxes. From 1914 to 1926–27 taxes increased 250 per cent, while prices received for farm products increased about 135 per cent.

(8) Attempts to utilize lands for crop production and home making which are much better adapted to forests and grazing than to general farming.

(9) A general decline in land values, accompanied by little decrease in the volume of agricultural indebtedness, resulting in a disproportionate decline in the farmers' equity. This, combined with the low current income, has increased the number of farm bankruptcies from 1.4 a year per 10,000 farms in 1904–13 to 12.2 per year in the past three years.

(10) Movement of people away from farms, a decline in farm population of more than 2,000,000 persons since January, 1922, shared in by all States except some in New England, and California, Washington, and Nevada in the West.

The report of the special college committee not only set forth the situation, but made numerous recommendations. It considered that "agricultural legislation is a far broader question than a single Act of Congress designed to alleviate the present situation, and that such legislation should provide for equalization with reference to such matters as taxation, tariff, and freight rates, provide for a sound land policy, and further improvement of credit facilities." It urged that legislation designed to aid in emergencies should be adopted in advance of such emergencies and should terminate as an emergency ends. A far-sighted land policy should recognize the lack of present need to develop more land for agricultural uses and the advisability of turning land of low productivity back to forests and other purposes; hence the report disapproved of further Government reclamation projects for the present. It pointed to the need of equalizing the tax burden in the case of each State, the recognition of short-term and immediate credit problems, and special efforts to overcome the obstacles to further agricultural coöperation.

Farm Relief. The McNary-Haugen Bill in somewhat modified form, but still containing the equalization feature, was re-introduced in Congress in December. Other measures were proposed and discussed during the year. The Secretary of Agriculture, in his Annual Report, expressed the belief that a large part of the farm problem must be solved by individual and coöperative efforts of the farmers themselves; and that, while the individual farmer has no control over price-making forces, united action is possible and is the greatest single need of agriculture. Legislation is required to give further encouragement to large agricultural business organizations owned and controlled by farmers and managed by strong business executives chosen by the producers.

The Secretary proposed a stabilization plan (*The Official Record*, U. S. Department of Agriculture, Nov. 9, 1927), headed by a Farm Board backed by more adequate statistical service and a revolving fund from which advances could be made to commodity organizations. This board would operate in conjunction with a stabilization corporation for each major commodity, the capital stock of which would be owned by properly organized commodity coöperatives. When an exceptional season resulted in a crop surplus, the stabilization corporation representing that crop, under the guidance of the Farm Board, would take part of the surplus off the market to prevent the price from dropping to an abnormally low level. In making purchases for this purpose, the stabilization corporation, acting under the direction of the Farm Board, would ascertain and announce the maximum price which it could pay without taking undue risk of losing money. To finance the transaction, 65 to 75 per cent of the purchase price would be borrowed from Intermediate Credit Banks on produce stored in warehouses bonded by the Federal government, and the balance advanced by the Farm Board out of its revolving fund, to be repaid when the product was sold after the price had recovered.

The operation of the plan is illustrated by the cotton crop of 18,000,000 bales in 1926, caused partly by increased acreage but largely by favorable weather conditions, which was more than 5,000,000 bales above the average of the preceding three years. Owing to the necessity of farmers to meet the demands of creditors, over 60 per cent of the crop was marketed from October to January at slightly less than 11 cents a pound, while later the price rose to above 20 cents. As a result, the record-breaking crop of 1926 brought farmers some $300,000,000 less than the value of the smaller crop of 1927. In such a crisis, a stabilization corporation could have operated to great financial advantage to the producers, and with a probable resulting profit to the corporation after carrying charges had been paid.

The effect of the stabilization plan would have been to help automatically to stabilize acreage, through the influence of coöperatives owning the respective stabilization corporations. Surpluses resulting from overproduction through expanded acreage require readjustment by change in the farming system, the substitution of other crops, or the expansion of markets. The large coöperatives would be able to assist their members in making such adjustments.

The Crop Year. Although unfavorable weather delayed planting and the season started under discouraging conditions, the gross production of the principal crops was 3.3 per cent greater than the average during the last ten years. It was, however, 2.2 per cent less than in 1926. Crop production per capita was declining, being 3.4 per cent less in 1927 than in the previous year, and 4.8 per cent below the average for the last ten years. The acreage of the principal crops increased slightly, and although the yields were lower than in 1926 the average was 2.5 per cent above the ten-year average. The total value of about fifty crops in 1927 was estimated by the Department of Agriculture on the basis of December prices at $8,428,626,000, compared with $7,793,480,000 for the same crops in 1926. This represented an increase in value over the preceding year of $635,146,000, the largest increases being in corn, cotton, barley, and oats. There was a considerable decrease in the value of potatoes, and smaller ones in the case of wheat, hay, apples, peaches, and some minor crops.

The 1927 corn crop was estimated at 2,786,000,000 bushels, or 94,061,000 bushels (about 3 per cent) more than in 1926. This production was the greatest surprise of the season, because a late start and slow growth made it seem probable that much of the corn crop would be caught by frost. The increased production was not uniform the country over, there being a decrease in some sections, particularly in the eastern corn belt and the North Atlantic States. About 69 per cent of the crop was produced in the twelve corn belt States. The farm value of the crop was placed at a little over $2,000,000,000, or $285,000,000 more than in 1926.

The final estimates placed the 1927 wheat crop at 871,691,000 bushels, or about 41,000,000 bushels greater than in 1926. The winter wheat production in 1927 was below the relatively large crop of 1926, but the spring wheat production was the largest since the record year of 1918. The total farm value of the wheat crop was placed at $974,694,000, which compared with $995,954,000 in 1926.

Cotton production was estimated at 12,789,000 bales, compared with 17,977,000 bales in 1926. In value, the lint and seed were worth $331,000,000 more than the record crop of 1926, an increase of 29 per cent.

Oats had a poor start and the crop showed a decline compared with 1926, although the total value was somewhat greater.

Barley was seeded on a largely increased acreage, and the yield per acre was considerably above that of 1926, resulting in an increased production of some 80,000,000 bushels. An advance in price of nearly 10 cents per bushel made the value nearly $74,000,000 greater than the previous year. The increasing popularity of barley as a feed crop was shown by the fact that acreage increased in practically every State where it is grown.

There was an increase in the rye crop and in its value, compared with 1926.

The production of flaxseed, estimated at 26,583,000 bushels, was the largest since 1924, and its value was about $12,000,000 greater than in 1926.

Rice production declined 1,500,000 bushels, and due to a decline in price the value fell off approximately $8,000,000 below that of the preceding year.

The potato crop of 402,000,000 bushels was about 48,000,000 bushels larger than the relatively short crop of 1926. Its value, however, was about $113,000,000 less, owing to the lower price. The greatest decline in value occurred in the Northwestern States, where an unusually large crop was planted.

The tobacco crop was estimated at 1,237,832,000 pounds, a reduction of about 60,000,000 pounds from last year. The increase in the bright flue-cured districts of the eastern seaboard was more than offset by heavy reductions in the air-cured and fire-cured districts of the Mississippi Valley and Virginia, and less important reductions in some of the cigar districts. The average price was higher, making the value of the crop $266,356,000, or approximately $30,000,000 greater than in 1926.

The crop of tame hay was the largest ever produced, being estimated at 106,219,000 tons, as compared with 97,622,000 tons in 1924, the previous record crop. The farm value was placed at $1,206,650,000, or about 1 per cent below the value of the smaller 1926 crop. The crop of wild hay was nearly double that of 1926 and was the largest since 1923.

The apple crop was approximately one-half that of 1926, but was valued at only about 4 per cent less. The peach crop showed a decline in size and in value, more than half the decrease in value occurring in California, where nearly 3,000,000 bushels were lost because of local marketing conditions.

Good conditions prevailed in the cattle and sheep industries, and the dairy industry enjoyed another good year. Conditions were relatively unfavorable for the swine industry from the standpoint of prices, due primarily to a sharp decline in the foreign demand for American pork and pork products.

See also individual crops, HORTICULTURE; LIVESTOCK and DAIRYING.

Record export shipments of cotton and fruit, and substantial increases in exports of wheat, rice, and rye, with the mentioned marked decline of pork products, featured the American foreign trade record for the year. Quantities were higher than in any year since 1921–22, but lower prices caused comparatively low returns. Agricultural products constituted 42 per cent of export values, as compared with 48 per cent in 1924–25. The tendency continued for imports of dairy products to exceed exports. Exports of condensed and evaporated milk declined 20 per cent. Butter prices abroad were consistently lower than in the United States, the margin at times exceeding the 12 per cent tariff and resulting in imports.

AGRICULTURE ABROAD. Estimates of the wheat production as reported December 21 for 39 countries amounted to 3,410,000,000 bushels, as compared with 3,297,000,000 in the same countries in 1926, an increase of 3.5 per cent. These countries in 1926 produced 96.4 per cent of the total world crop, exclusive of Russia. The first official Argentine estimate was 240,000,000 bushels, compared with 221,000,000 in 1926, while the official estimate for Australian production was 115,000,000 bushels, compared with 161,000,000 last year. European wheat production, exclusive of Russia, was given as about 4 per cent above last year, but the increase was offset by poor quality.

Potato production was about 22 per cent above that of 1926.

Returns for England and Wales showed an increase of 44,000 acres of wheat, but a considerable decrease in barley and oats. An outstanding feature of the returns was the increase of 96,000 acres in sugar beets, which comprised over 221,000 acres, or four times that of 1925. The potato acreage exceeded 500,000 acres, being nearly 15,000 acres more than in 1926. Cattle raising was on the increase, the returns showing nearly 22,000 more than in 1926, and the largest total ever recorded. Milch cows continued to show an increase, thus adding to the surplus over the needs of consumption as liquid milk. The number of sheep continued to increase as in recent years, although at a less rate, and the pig population had grown nearly half a million, encouraged by the embargo on pork from the Continent.

This increase in livestock farming was reflected in other European countries. Agriculture in France was going through quite drastic readjustments, shifting to a larger extent from cereal production to animal husbandry. Efforts likewise were being made in Germany to stimulate the production of livestock and livestock products at the expense of intensive cereal production. The numbers of hogs and cattle in that country were about 86 and 93 per cent, respectively, of the pre-war level. In Italy, on the other hand, Mussolini was urging increased cereal production to the point where the country would be self-supporting. A "back to the land" movement was under way, and the rural population of Italy was reported to have increased 1,178,731 in the last decade. The total rural population was estimated at something over 10,000,000, more than a fourth of the total population of the country.

A report on the status of agriculture in Persia issued during the year (*Experiment Station Record* 56, page 104) shows the backward condition and the handicaps to be overcome in developing a prosperous agriculture. The report is the result of a survey by J. B. Knight, undertaken at the instance of the League of Nations

PRODUCTION BY COUNTRIES IN 1926 AND 1927 OF WHEAT, RYE, OATS, BARLEY, AND MAIZE IN BUSHELS

	Wheat		*Rye*		*Oats*		*Barley*		*Maize*	
	1927	*1926*	*1927*	*1926*	*1927*	*1926*	*1927*	*1926*	*1927*	*1926*
United States	871,691,000	831,040,000	58,572,000	40,795,000	1,195,006,000	1,246,848,000	265,577,000	184,905,000	2,786,288,000	2,692,217,000
Canada	444,282,000	409,811,000	16,071,000	12,114,000	480,697,000	406,901,000	98,242,000	99,684,000	4,355,000	7,815,000
Argentina	220,826,000	191,140,000	3,268,000	4,700,000	66,276,000	80,400,000	18,372,000	17,058,000	320,853,000	280,000,000
Chile	23,286,000	27,469,000	57,000	54,000	4,139,000	5,180,000	5,202,000	5,294,000	1,407,000	1,460,000
Uruguay	10,284,000	10,024,000			1,435,000	2,440,000	70,000	107,000	5,349,000	
Austria	10,360,000	9,438,000	18,168,000	18,712,000	28,747,000	29,955,000	10,315,000	9,074,000	4,428,000	3,825,000
Hungary	75,835,000	74,908,000	22,569,000	31,416,000	21,717,000	24,802,000	23,319,000	25,509,000	69,298,000	76,545,000
Czechoslovakia	37,870,000	34,130,000	1,657,000	1,583,000	90,742,000	95,066,000	55,022,000	52,501,000	10,618,000	10,452,000
Belgium	14,449,000	12,801,000	20,078,000	20,108,000	43,991,000	50,729,000	3,637,000	4,202,000		
Bulgaria	47,399,000	41,064,000	8,267,000	8,008,000	7,481,000	7,413,000	14,238,000	11,970,000	20,613,000	29,019,000
Denmark		8,767,000		12,480,000		60,833,000		83,416,000		
Esthonia	1,045,000	878,000	6,719,000	4,490,000	13,406,000	9,170,000	4,345,000	6,039,000		
Finland	813,000	924,000	11,463,000	11,909,000	37,118,000	40,835,000	5,576,000	7,170,000		
France	284,353,000	231,766,000	36,799,000	30,076,000	372,539,000	364,122,000	55,572,000	45,856,000	21,511,000	12,686,000
Germany	113,644,000	95,429,000	286,271,000	252,191,000	434,667,000	435,725,000	122,733,000	113,106,000		
Greece	13,300,000	11,171,000	1,217,000	1,412,000	4,972,000	5,556,000	9,396,000	8,136,000		
Italy	202,087,000	220,642,000	6,417,000	6,496,000	31,960,000	40,648,000	9,921,000	11,023,000	85,556,000	118,090,000
Latvia	2,185,000	1,860,000	11,935,000	6,119,000	15,849,000	19,009,000	6,553,000	8,661,000		
Lithuania	5,004,000	4,180,000	21,157,000	13,811,000	18,584,000	22,009,000	8,721,000	11,430,000		
Luxembourg	743,000	622,000	361,000	353,000	2,768,000	3,249,000	149,000	184,000		
Netherlands	5,096,000	5,487,000	13,594,000	13,644,000	22,873,000	22,530,000	3,027,000	3,558,000		
Norway	563,000	586,000	634,000	647,000	12,169,000	13,332,000	4,747,000	5,125,000		
Poland	54,707,000	47,080,000	234,943,000	197,292,000	235,549,000	210,111,000	74,871,000	71,404,000		4,166,000
Portugal	11,280,000	8,557,000	4,428,000	3,638,000	6,412,000	4,728,000	1,963,000	1,487,000		12,275,000
Roumania	98,425,000	110,882,000	9,753,000	11,243,000	58,053,000	79,850,000	61,136,000	77,391,000	145,475,000	239,496,000
U. S. S. R. (Europe & Asia)		819,565,000		901,599,000		987,679,000		253,020,000		143,356,000
Spain	145,597,000	146,599,000	27,074,000	23,505,000	39,892,000	37,688,000	89,485,000	96,287,000	24,794,000	17,186,000
Sweden	11,287,000	12,863,000	18,940,000	23,325,000	77,416,000	86,058,000	12,346,000	14,869,000		
Switzerland	5,982,000	5,622,000	1,657,000	1,588,000	3,059,000	3,107,000	583,000	565,000	154,000	130,000
United Kingdom		52,155,000				222,000,000		54,598,000		
Jugo-Slavia	56,527,000	71,428,000	5,923,000	7,454,000	19,424,000	24,645,000	14,448,000	17,275,000	76,629,000	134,251,000
British India	334,059,000	324,651,000						120,589,000		67,560,000
Japan	29,244,000	28,430,000				10,764,000	71,555,000	88,078,000		
Algeria	33,069,000	23,551,000		16,000	12,056,000	8,693,000	39,500,000	23,001,000	222,000	
Egypt	44,346,000	37,207,000					11,961,000	10,097,000		77,180,000
Tunis	5,511,000	13,044,000			1,963,000	2,136,000	4,593,000	3,819,000	177,000	126,000
Australia	160,852,000	114,000,000								
New Zealand	7,670,000	4,617,000			5,987,000	5,000,000	1,271,000			424,000
Union of South Africa	8,502,000	8,300,000			9,700,000		1,686,000		68,193,000	

to determine possibilities of substituting other crops to replace the culture of the opium poppy, which had become a principal enterprise in certain sections.

World Agricultural Census. Under the direction of the International Institute of Agriculture at Rome, a world agricultural census was arranged to be taken in 1929–30. This was the first attempt of the kind and its importance is evidenced by the fact that, of the 200 countries listed by the Institute, only 60 had ever taken an agricultural census and only 40 of these had taken one since 1900.

Wheat Pools. An International Wheat Pool Conference held at Kansas City, Missouri, advocated a world wheat pool and endeavored unsuccessfully to commit the Secretary of Agriculture to the plan. While in favor of market stabilization through pooling, he believed this should be tried out first in the United States before giving it international scope. Plans for an American pool were under way, to be financed with Governmental aid or support.

In Canada, wheat pools organized in 1923 had been very successful and had a membership of nearly 140,000 farmers in the three prairie provinces of Manitoba, Saskatchewan, and Alberta. These pools collect the grain and turn it over to the central selling agency known as the Canadian Coöperative Wheat Producers, Ltd. During the crop year 1926 this central selling agency handled more than 215,000,000 bushels of grain, mainly wheat, but including oats, barley, rye, and also flaxseed. The provincial wheat pools handled more than 56 per cent of the entire wheat crop of Western Canada, the returns aggregating $271,500,000. The overhead selling cost of the central agency amounted to one-fifth of a cent per bushel. These pools own and lease large terminal elevators and have complete control of the members' wheat from the time of delivery to the country shipping point until it is turned over to the central selling agency. Members sign a five-year contract binding themselves to deliver to the pool all the wheat they produce. These contracts form the foundation of the organization. All existing contracts terminated with the 1927 crop. These pools were developing a broad service for their members, and were giving the producers of grain the savings of large-scale operations and efficient management.

Agricultural Machinery. The increasing use of power and machinery on the farm has been a large factor in increasing the efficiency per man. Since 1920 the number of tractors, automobiles, stationary gas engines, and other appliances for power farming have shown tremendous growth, with consequent reduction in the number of work animals. This has released for other uses 15,000,000 to 20,000,000 acres of crop land formerly required to grow feed for work stock. In five years the increase in mechanical horsepower on farms was estimated as five times as great as the decrease in animal power.

Power machinery, besides increasing the productivity of the individual worker, tends to increase the size of the individual farms and influence the distribution of crops and the type of farming. The latter is illustrated by the movement of corn production westward and northward, and still more strikingly in the case of wheat. Lower production costs, made possible by power machinery, tend to push crop production farther west into the semi-arid sections and into regions where conditions necessitate specialized farming. It is prophesied that the type of agriculture suited to power cultivation will be more and more concentrated in relatively level areas where large farms are practicable, leaving the older regions to concentrate increasingly on diversified farming.

A well-nigh revolutionary advance is the spread of the so-called "combine," which both cuts and threshes the wheat as it travels over the field, reducing the labor requirements, the time, and the cost of harvesting grain to a fraction of what it formerly was. In the days of the sickle and oxen, more than three hours of man labor were required per bushel of wheat; the modern binder reduced this to about ten minutes per bushel, and the combine has nearly cut that in half. In 1927 a large part of the grain in many sections where expansion is taking place was harvested by the combine. Half the wheat in Kansas was harvested by that means. The number of combines in that State had increased rapidly, up to over 12,000 in 1927, and the spread had been quite general in other States, even extending eastward. In Illinois more than 300 combines were in use, and the machine had been introduced into Pennsylvania, Delaware, and Virginia.

Bibliography. Two books on general agriculture which appeared during the year are especially worthy of mention. The first of these is *The Farm—What Nature Has Done to Make Farming Possible, What Farming Must Do to Make it Profitable and Permanent, What Interest Society Must Take in the Enterprise*, by Eugene Davenport, former Dean of Agriculture of the University of Illinois. (New York, 1927.) The other is *The Evolution of the English Farm*, by M. E. Seebohm (London, 1927), a popular introduction to the history of English farming from the Stone Age to the twentieth century.

See also the articles on the different crops, Forestry, Horticulture, Fertilizers, Soils, Livestock, Dairying, Entomology, Veterinary Medicine, Foods and Nutrition, etc.; Business Review.

AGRICULTURE, United States Department of. Dr. William Marion Jardine of Kansas, in 1927 continued to be Secretary of Agriculture, with Renick W. Dunlap as Assistant Secretary. Dr. Leland O. Howard, in the service of the Department since 1888, retired as Chief of the Bureau of Entomology Oct. 11, 1927, and was succeeded by Dr. C. L. Marlatt, the associate chief. Dr. E. W. Nelson, Chief of the Biological Survey, retired May 9, 1927, and was succeeded by Paul G. Redington, assistant chief of the Forest Service. Dr. Milton Whitney, chief of the Bureau of Soils until June, 1927, died Nov. 11, 1927. A Bureau of Chemistry and Soils, including the research work of the former bureaus of chemistry and soils and the fixed nitrogen laboratory, was established July 1, 1927. Dr. Henry G. Knight, dean of the College of Agriculture of the University of West Virginia, became chief of this new bureau October 1. A Food, Drug and Insecticide Administration was established July 1, 1927, and put in charge of W. G. Campbell, Director of Regulatory Work. It will enforce the food and drugs, tea inspection, insecticides, naval stores, milk import and caustic poison acts. On June 30, 1927, the personnel of the department was 21,661, of whom

4791 were located in Washington. Plans for a group of large new buildings for the department were approved, under the public buildings act of May 25, 1926.

The report of the Secretary for 1927 dealt to a considerable extent with the economic problems of agriculture in the United States, including coöperative marketing, national farm legislation, the tariff, taxation, land utilization and movements of population.

Coöperative Marketing. The division of coöperative marketing organized in the Bureau of Agricultural Economics under the Act of July 2, 1926, worked as a fact-finding agency regarding the organization and operations of coöperative associations dealing with cotton, grain, livestock, milk, fruits and vegetables. Cooperative associations reporting to the department in 1926 had about 2,000,000 members and transacted about $2,500,000,000 worth of business, which was only a slight increase above that of 1925. The associations were, however, increasingly efficient and stable. Large-scale organizations were more prominent and were favorably considered by the department. More than 150 coöperative associations in the United States each handle business exceeding a million dollars annually. Congress passed an act prohibiting boards of trade or similar organizations from excluding from their membership and privileges representatives of coöperative associations or producers' organizations acting for a group of such associations.

Recent Regulatory Laws. The following laws gave additional regulatory functions to the department: (1) Act of Feb. 15, 1927, to regulate the importation of milk and cream; (2) Act of Mar. 4, 1927, to safeguard the distribution and sale of certain dangerous caustic or corrosive acids, alkalies and other substances; and (3) Act of Mar. 3, 1927, to prevent the destruction or dumping of farm produce by commission merchants and to require them to account correctly for all farm produce received by them.

Roads. During the fiscal year ended June 30, 1927, 8306 miles of road were completed under the Federal Road Act of Nov. 9, 1921, making a total of 64,209. The total cost of the projects completed during the year was $182,770,000, of which $81,330,000 was paid by the Federal Government. The total Federal-aid funds apportioned to the States during 11 years was approximately $763,000,000. With Federal funds of the Bureau of Public Roads 452 miles of forest roads were completed during the fiscal year 1927, making the total 3498.

Expenditures. For the fiscal year 1927 the total expenditure for the regular work of the department was $47,037,961. Approximately $10,600,000 was used for research; $2,400,000 for extension work; $9,000,000 for eradication or control of plant and animal diseases, insects and other pests; $15,000,000 for service activities, and $10,000,000 for regulatory work. Funds amounting to $8,509,673 were received and deposited in the Treasury, of which $4,652,565 was from business in the National forests. The other funds administered by the department aggregated $106,049,018, of which $92,072,566 was for Federal-aided roads and forest roads and trails; $2,880,000 for experiment stations under the Hatch, Adams and Purnell Acts; $5,880,000 for extension work under the Smith-Lever Act; $1,299,090 for local road and school purposes, and $1,001,290 for forest purchase and conservation under the Weeks Act.

Appropriations. The Appropriation Act of 1927, for the fiscal year ending June 30, 1928, carried $128,511,739, of which $77,500,000 was for roads. The amount available for the regular work of the department was $47,186,739. To this must be added permanent appropriations, including $4,580,000 for extension work under the Smith-Lever Act, $3,000,000 for meat inspection, $1,920,000 for experiment stations under the Purnell Act, and $3,771,250 for various forestry purposes. The total available for the department in 1928 was $139,862,989.

Publications. For the fiscal year 1927 the department issued 574 new publications, 299 numbers of six periodicals and 580 reprints, in total editions of 28,871,920 copies, of which 11,360,952 were *Farmers' Bulletins*. *The Yearbook* for 1926 contained a large number of short articles covering a wide range of subjects, under the title "What's New in Agriculture," together with statistics of crops, livestock, forestry, imports and exports, farm prices, farm property and income, cost of production, farm population, etc.

Radio Service. On April 1, 1927, there were 1,251,186 radio sets on farms in the United States. More than 100 commercial stations were broadcasting the department's programmes in October, 1927. These programmes included Aunt Sammy's daily housekeepers' chat, noontime farm flashes, poultry chats, insect and wild-animal allies and enemies, farm news digest, young folks' programme, primer for town farmers, and the United States radio farm school.

The department library contained about 217,000 books, pamphlets and bound periodicals, of which about 17,600 were added during 1927.

AIKENS, Charles Thomas. President of Susquehanna University, died at Selinsgrove, Pa., June 21. He was born at Siglerville, Pa., Dec. 14, 1862, and graduated from the Missionary Institute at Selinsgrove in 1883. He received the degree of A.B. from Pennsylvania College in 1885 and that of A.M. in 1888 when he graduated from the Theological Seminary at Gettysburg, Pa. He was ordained to the Lutheran ministry in 1880, becoming pastor at Pinegrove, Pa., in that year and serving there until 1905, when he became president of Susquehanna University, Selinsgrove, Pa. In addition to his educational interests he was president of the Selinsgrove Realty Company, and an official of various other companies. He was a delegate to the Republican National Convention of 1916 and a member of the Electoral College for Pennsylvania in the same year. From 1897 to 1901 he was president of the Synod of Central Pennsylvania, and in 1895, 1913 and 1917 a delegate to the General Synod. He was also president of the Selinsgrove Chamber of Commerce, president of the Susquehanna Trail Association, and chairman of the Eastern State Hospital Commission of Pennsylvania.

AIRCRAFT CARRIERS. See Naval Progress.

AIRSHIPS. *See* Aëronautics.

ALABAMA, Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,348,171. The estimated population on July 1, 1927, was 2,549,000. The capital is Montgomery.

Agriculture. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	2,966,000	47,456,000	$43,660,000
	1926	2,825,000	45,765,000	34,781,000
Cotton	1927	3,225,000	1,200,000[a]	114,000,000
	1926	3,651,000	1,498,000[a]	80,143,000
Peanuts	1927	220,000	149,600,000[b]	5,086,000
	1926	140,000	79,800,000[b]	3,591,000
Sweet potatoes	1927	75,000	7,850,000	6,248,000
	1926	65,000	6,500,000	5,525,000
Hay	1927	637,000	531,000[c]	7,931,000
	1926	545,000	517,000[c]	9,234,000
Potatoes	1927	33,000	2,475,000	3,712,000
	1926	29,000	2,030,000	3,857,000
Oats	1927	101,000	1,768,000	1,238,000
	1926	107,000	2,354,000	1,601,000
Peaches	1927	......	540,000	810,000
	1926	......	1,159,000	1,275,000

[a] bales, [b] pounds, [c] tons.

Mineral Production. Production of the State's chief minerals, coal and iron ore, was somewhat heavier in 1925 than in 1924, and coal production further slightly increased in 1926. Quantity totals of coal produced were: 1926, 20,008,638 net tons; 1925, 20,004,395 tons; 1924, 19,130,184 tons. Coal produced was valued, for 1926, at $48,036,000; 1925, $42,442,000; 1924, $44,756,000. Iron ore production, in quantity, was: 1926, 6,871,412 long tons; 1925, 6,981,081 long tons; in 1924, 6,557,596 long tons. In value, it was: 1926, $13,846,656; 1925, $14,134,667; 1924, $13,957,551. Blast furnaces produced of pig iron, in 1926, 2,875,534 long tons; and in 1925, 2,910,370. The value produced was, for 1926, $58,119,260; for 1925, $57,777,275. Coke production in 1926 was about 5,375,000 short tons; in 1925, 4,760,481 short tons valued at $16,801,841. Cement production was, in barrels, 6,693,900 in 1926, 6,045,967 in 1925; in value, $10,825,421 in 1926 and in 1925, $9,824,439. Clay products, lime, sand and gravel and stone continued to be produced in important amounts. The total value of mineral products in 1925 was, with duplications eliminated, $77,139,340; in 1924, $77,315,758.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State in the year ending Sept. 30, 1926, were $14,268,973; per capita, their rate was $5.66. They included $4,127,174 for education. Interest payments were $1,265,013; public service enterprises cost $33,858; permanent improvement outlays, $10,388,021. With these added totals, State payments attained $25,955,865. Of this $8,486,861 was for highways; for their maintenance, $741,785, and for construction, $7,745,076. Revenue receipts were $19,948,374; or per capita, $7.92. Of the revenue, the property and special taxes yielded 40.7 per cent. Their per capita rate was $3.22. Earnings of departments and compensation paid the State for officials' services supplied 20.9 per cent of revenue; licenses, chiefly on companies and on motor vehicles, supplied 23.8 per cent. Net State indebtedness on Sept. 30, 1926, was $34,439,224, or $13.67 per capita. Property subject to ad valorem taxation had a value of $1,071,205,516. State taxes levied were $6,962,836, or $2.76 per capita.

Transportation. The total mileage of railway lines under operation Dec. 31, 1926, was 5184.19. During 1927, 28.85 miles of new track was built.

Education. The passage by the Legislature of the unified education bill carried appropriations to the approximate amount of $5,000,000 a year. Equally important in the educational development of the State was the legislative proposal of a constitutional amendment to provide $20,000,000 of State money for school construction (see *Legislation*). According to the estimate of R. W. Cowart of the State Education Association, in the *Journal* of the National Education Association, the seven months' minimum school term was guaranteed by State legislation providing in effect more than $3,700,000 a year of increased school operating funds. For the school year ending Sept. 30, 1926, the school population was estimated at 871,701, reckoning all between the ages of 6 and 20 years, inclusive. School enrollment was 590,405; that in common schools being 485,412 and that in high schools 104,993. Expenditure of the year for school education was $18,360,715. The salaries of teachers averaged $655.

Charities and Corrections. The State Board of Administration acts as the central State organization in the field of welfare activities. It directs the hospitals, insane asylums and child welfare institutions of the State, and has supervised the employment of prisoners under the convict leasing system. Its report is issued quadrennially, to coincide with the sessions of the State Legislature.

Legislation. The legislature held a special session of six legislative days, ending January 4, in which there was voted a constitutional amendment for submission to popular vote on April 12. This amendment provided for the financing of further State highway work by the issue of $25,000,000 of bonds, and for a gasoline tax of 2 cents a gallon, in part to meet charges on this debt if issued and in part to provide funds for the removal of convicts from compulsory mine labor. On January 12, the Legislature reconvened, beginning its regular quadrennial session. A law was passed making an emergency appropriation of $600,000 in order to render effective during the current year a plan to supply to public schools sufficient State aid to enable them to give instruction for a minimum of seven months annually. A measure for the expenditure of $5,000,000 to carry out the improvement of the port of Mobile, where State docks were being brought to completion, was enacted, and was signed by Governor Brandon as his last official act, January 17. Legislation to terminate the convict leasing system in force in the State, at the end of the calendar year, and to permit transfer of convicts from county to State custody, was passed. Measures to meet a demand for higher State revenue, which were enacted, included a 15 per cent sale tax on cigars and cigarettes, which went into force October 2. An act providing for submission to the voters on Jan. 10, 1928, of a constitutional amendment to permit issue of $20,000,000 of school improvement bonds and another to place before the people on Dec. 13, 1927, an amendment to empower counties to borrow up to 1½ per cent of assessed valuations likewise passed. The session adjourned September 2.

Political and Other Events. At a special election held December 13, a decisive adverse popular vote defeated a constitutional amendment authorizing increased taxation by numerous municipalities of the State. Nine other amendments, one authorizing Jefferson County to build a tuberculosis sanatorium, were likewise defeated. A State commission having conducted an investigation of the State's rights in the Muscle Shoals development reported, March 18, that the United States had never acquired and under the State constitution could not acquire ground in Alabama over which the Tennessee River flowed. Governor Graves and members of this commission went to Washington, and declarations of the State's claims were there presented to Administration officials, the contention being that, if the Wilson Dam and power sites were turned over to private operation, Alabama should derive profit. Assistant Attorney-General Parmenter reported against this claim December 31. Counsel for C. R. Bachelor, a defendant under sentence of death, contended in the State Supreme Court that he could not be executed, a statute making execution by the electric chair obligatory having failed to provide for the case of defendants sentenced to hang before this statute had gone into effect. The Court, in the matter of the constitutionality of the appropriation to insure a seven months' term for every pupil, declared the law to that effect valid. In another decision, it sustained a lower court to the effect that the character of a man was not protected by law from defamation by a woman, and refusing damages for such defamation. The disclosure of numerous cases of flogging of unpopular persons, inflicted by bands of individuals in Crenshaw County, led to the indictment there of some 102 persons, in October, including an alleged former high official of the Ku Klux Klan. Some of the cases were prosecuted by Attorney-General McCall. Juries, however, acquitted, in November, the first two defendants tried, and the prosecutions were abandoned. In Blount County seven floggers who admitted membership in the Klan were convicted and sentenced after pleas of guilty had been entered by the first three brought to trial.

Officers. Governor, Bibb Graves; Lieutenant-Governor, W. C. Davis; Secretary of State, John Brandon; Treasurer, W. B. Allgood; Auditor, Sidney H. Blan; State Superintendent of Education, R. E. Tidwell; Attorney-General, Charles C. McCall; Commissioner of Agriculture and Industries, S. M. Dunwoody.

Judiciary. Supreme Court: Chief Justice, John C. Anderson; Associate Justices, William H. Thomas, A. D. Sayre, Ormond Somerville, Lucien Gardner, Virgil Bouldin and Joel B. Brown.

ALABAMA, University of. A State institution for higher learning at University, Ala.; founded in 1831. For the autumn term of 1927 there were 2614 students, enrolled as follows: arts and science, 1468; engineering, 316; law, 126; medicine, 88; graduate, 35; education, 90; commerce, 491. The summer session registration was 2311. The faculty for 1926–27 numbered 112, of whom 7 were newly appointed. The productive funds of the University amounted to $1,726,948.36, and the income for the year was $655,759.29. The library contained about 75,000 volumes, of which 20,000 were government documents. A new commerce building was under construction during the year at a cost of $200,000. President, George H. Denny, Ph.D., LL.D.

ALASKA. The fiscal year 1926–27 was marked by somewhat improved conditions. The balance of trade in favor of the Territory increased $18,655,742; the fisheries yielded $19,160,000 more than the previous year; furs also increased in value by $346,000; the treasury balance at the end of the year was $1,195,000. While the mineral output decreased owing to reduced price of copper, the gold product increased, especially from placers mined by dredges.

Congressional legislation was beneficial. The act that authorized the appointment of commissioners, to reside in Alaska, and exercise certain delegated powers of Federal departments, materially facilitated public business. Three cities were given power to issue bonds for welfare purposes. Illiterates were debarred from registration as voters. An important law was that which provides for the protection, development, and utilization of the public lands, by establishing an adequate system for grazing livestock thereon.

Commerce. The shipments to the United States for the fiscal year were $80,018,034, an increase over the previous year of $18,946,167. The shipments into the Territory were $32,062,902, leaving a balance of trade in favor of Alaska of $47,955,132, an increase over 1925 of $18,655,742.

Fur Seals. The seal herd steadily increases as shown by the census which gave the following numbers: 1924, 697,158; 1925, 723,050; 1926, 761,281; 1927, 808,870. Especially noticeable was the increase in breeding cows, from 185,914 in 1922 to 244,144 in 1926. Regulations remained unchanged for the protection of fur-seals, sea otters, sea lions and walruses. On the seal reservation, Pribilof Islands, there were trapped in 1926–27, 728 blue and 30 white foxes. At public auction during the year there were sold skins of 468 blue foxes for $24,741, an average of $53.20 per pelt.

Fisheries. Great activity in the fishing industries was indicated by increases of 11 per cent in investments, 36.5 per cent in products, and of 367 additional employees. In general the catch was phenomenal, and in value aggregated $54,669,882. The distribution in species was salmon, $48,178,995; herring, $3,354,489; halibut, $1,622,534; whale, $679,754; clams, $254,236; cod, $78,317; crabs, $61,616; miscellaneous, $44,013. There were off-shore catches not landed in Alaska of more than $400,000. There were increases in the catch of whales and halibut, otherwise decreases.

Salmon. As usual the value of the salmon industries was nearly 90 per cent of the whole catch; of this amount 98 per cent was canned salmon. The output consisted of 6,652,882 cases, valued at $46,080,004 in 1926, as against 4,459,937 cases and $31,989,531 in 1925. This pack of 1926 exceeded by more than 47,000 cases the unusual output of 1918. The salmon catch of 1926 numbered 96,907,627, distributed by species as follows: Coho or silver, 2,158,141; chum or keta, 10,809,305; humpback or pink, 52,960,642; king or spring, 588,637; red or sockeye, 30,390,902. Chums and kings decreased, the other species increased. The general increase in the catch was due chiefly to the large run of humpbacks in central Alaska, and of reds in the western waters. Returns as far as received indicated a marked decrease in the salmon catch of 1927.

Communications. *Alaska Railroad.* This system consists of a line from Seward, on the Gulf of Alaska, to Fairbanks, with branches in the Matanuska valley and in the Fairbanks mining district. There is also connected with it summer boat service on the Tanana and lower Yukon Rivers, which was extended during the year 135 miles to Marshall. The railroad was still a financial burden with an annual deficit of nearly one million dollars. Revenue increased 30.6 per cent, commercial freight rising to 82,416 tons; revenue passengers decreased. Large sums were needed for completion of road and modernization of equipment.

Roads and Trails. Coöperation was established between the Alaska Road Commission, the Forest Service and the Alaskan Bureau of Public Roads. A most important extension, 165 miles from Fairbanks to Circle, was made passable for wagons in summer and bob-sleds in winter. The completed system of 10,660 miles, consists of 2810 roads, wagon, sled and tramway, and 7637 miles of trails. The system has aided in the development of all parts of the Territory and decreased freight charges largely.

Aviation. The Alaskan Legislature in 1927 recognized the economic importance of commercial aviation, and made appropriations therefor. There were under construction 20 airplane landing fields, and commercial aviation was carried on successfully by 8 planes.

Cables and Radio. The U. S. Signal Corps cable, declared by Governor Parks "to hold its position as one of the most important of the Government agencies," was interrupted in its operation for seven days and eight hours, by a whale, at a depth of 3600 feet. There were 27 Signal Corps radio stations, and 33 telegraph offices. The value of the traffic for the year amounted to $402,343, an increase of $22,188 over 1925, due to increasing business.

FORESTS. The investigations of the U. S. Forest Service showed that the national forests of Alaska can produce, in perpetuity, 1,300,000 tons of newsprint paper annually. Two contracts, both in the Tongass National Forest, southeastern Alaska, were awarded for private exploitation. Each project covers five billion board feet of spruce and hemlock pulp timber, with necessary water power for operation; timber sales and power licenses run fifty years. Each initial plant requires an investment of approximately $10,000,000, and must be in operation before Apr. 1, 1932. The timber cut of the national forests in 1926 was 55,761,000 board feet. See FORESTRY.

GAME AND FUR. Conservative and protective measures were taken to preserve species of game in danger of extermination. The policy of restocking places without game was adopted, and various kinds were placed on islands, with marked success. Especially there were two new reservations created by executive order of Feb. 21, 1927. On the Curry Refuge, Alaska, all wild life is given full protection, except bears and wolves which may be killed under restrictions. In the Alaska Railroad refuge beavers and muskrats can neither be trapped nor killed, except under special permits. Consideration was given to the uses of some of the islands of the Aleutian Bird reservation for farming, grazing and other commercial purposes. The Alaska Game Commission was active in the enforcement of the laws, and gave consideration to such modifications as will conserve wild life. The value of the pelts of land fur-bearing animals shipped during 1926 was $2,349,640. An open season for beaver was provided during May, 1927, which will probably result in values for all land game in excess of three millions in 1927. To conserve useful game animals the Alaska Legislature appropriated funds for coöperation with the Biological Survey in the destruction of predatory animals.

REINDEER. The reindeer in 1927 numbered 500,000 or more, of which about 350,000 were estimated to be owned by the Eskimos. The rapid increase of the deer has raised serious problems, of breeding, grazing and commercial utilization. Through the wise action of the U. S. Biological Survey the improvement of the stock by crossbreeding with the caribou was in process on Nunivak Island and elsewhere. Methods of herd care so as to avoid diseases were formulated by the Survey and taught to many Eskimos. The question of allocating and leasing grazing lands, under a recent Act of Congress, was of the utmost importance. To make leases and grant permits are essential to prevent over-grazing, and all owners could not be contented. The commercializing of the reindeer industry was progressing rapidly, but awaits improved means of transportation and coöperative methods to aid the natives. The existing commercial companies were extending their operations and improving their equipment. Shipments by cold storage to the United States, and local canning were methods used. Shipments in recent years were 294,354 pounds in the fiscal year 1925; 710,756 in 1926; and 989,984 in 1927.

EDUCATION. The Agricultural College and School of Mines had an enrollment of 178, and agriculture, mining and home economics were the leading subjects taught. Coöperation was had with the U. S. Bureau of Mines, which continued its important supervisions of safety service, analyses and inspections.

Territorial Schools. Schools were maintained in 17 incorporated cities and one incorporated district at a cost of $323,396; the enrollment numbered 3218, and graduates 213. In 63 districts outside of incorporated cities there were enrolled 1464; the graduates numbered 35, and the expense was $176,470. In eight communities night schools were kept at an expense of $2795 in training aliens for citizenship; the enrollment of 242 represented 26 nationalities; among them were 32 women. The Territorial Legislature appropriated in 1927 $1,001,350 for educational purposes.

FINANCE. At the end of the fiscal year 1926–27 there was $1,194,613 in the Treasury. The 13 Territorial and four National Banks had deposits of $7,757,254; there were no suspensions during the year. In 1927 the collections for the Alaska Fund amounted to $256,713, an increase over 1926 of $62,020.

MISCELLANEOUS. There were no serious epidemics. For the two years 1925 and 1926 there were 646 births and 556 deaths among the whites, 780 births and 595 deaths among the natives. The insane and the indigent were cared for by an appropriation by the Legislature of $335,100.

MINERALS. Mining industries were undergoing a change in methods, and suffered from reduction in prices, especially that of copper. The total mineral productions were $18,220,692 in 1925; $17,567,800 in 1926; and were estimated by the U. S. Geological Survey at $14,445,000 in 1927. The total since 1880 was nearly $585,000,000.

Gold. The production of gold in recent years has varied but slightly. The product was $6,360,281 in 1925; $6,707,000 in 1926; and was estimated at $6,010,000 in 1927. The yield of gold comes about equally from lodes and placers. The introduction of dredges in placer mining, of which in 1927 there were 32 in operation, has beneficially affected the output. In 1926 the product of the placers was $1,873,000, an increase of $784,000 over 1925. The drought in 1927 seriously reduced the output. By far the greater amount from lodes comes from southeastern Alaska, but considerable and increasing values were being obtained in the Fairbanks district and on the Kenai peninsula. Modern installations in progress promised increased production in 1928.

Copper. While this metal yet surpasses gold in value, the product fell from $9,489,000 in 1926 to $7,280,000 in 1927. This decrease was due to the low price of copper in 1927, which deterred increase in production. The output was mainly from the mines of the Kennecott Company in the Copper River watershed and on Latouche Island. No ores are mined for silver, which is recovered from the copper; this explains the decrease in values of silver from $430,500 in 1926, to $320,000 in 1927.

Minor Minerals. The coal product, $495,000 in 1927, was a slight increase. Practically all coal came from three mines in the Matanuska field, and one in the Healy River field. In 1926, 70,000 tons were imported. The domestic market is limited and unpromising. The only petroleum output is from the Katalla field, and is used for local purposes. Prospecting goes on but up to 1927 there had been no definite outcome. More than 20,000,000 gallons of various kinds of oil were imported during 1926. The output of other minerals, lead, platinum, quicksilver, tin, etc., varies slightly from year to year.

U. S. GEOLOGICAL SURVEY. The work of this Bureau, from whose reports the foregoing summary of mineral industries has been drawn, was prosecuted with its usual efficiency. On these surveys the development of Alaska has largely depended. Its investigations of mineral resources include an annual summary of mineral production, study of individual deposits, and the mapping thereof. In connection with the mineral researches, both geologic and topographical surveys are made. During 1926 such surveys covered areas of 7,600 square miles. The performances of its geologic surveys now cover 41.1 per cent of the total area of the Territory, while the topographic work covers 43.5. In northwestern Alaska surveys were continued to determine the possibility of petroleum deposits in the Naval Petroleum Reserve, No. 4. For the use of the Geological Survey, airplane mapping was done by the Navy in southeastern Alaska. An agent of the Survey at Anchorage transacts the work connected with the leasing of public land.

NATIVES. The U. S. Bureau of Education, through its Alaskan Division, conducts, for about one half of the natives, day schools, industrial institutions, and reindeer schools; it also maintains hospitals, gives medical relief and supervises sanitation. In the six districts the work in each is supervised by a resident superintendent. In 1926 there were 88 day schools, with an enrollment of 3616. The eagerness of the children for education is shown by the average attendance of 89.1 per cent, which on Seward peninsula rose to 92.5. In these schools only the simpler rudiments of an education are taught. Most beneficial effects have resulted from the community work with which the teachers are charged. In 1926 the 136 teachers served a native population of 12,405. They made 83,414 visits to homes, and rendered medical assistance in 33,714 cases.

Most important was the work at the three industrial institutions, Kanakanak, with 99 pupils, Eklutna with 67, and White Mountain with 56 scholars. The schools are provided with modern tool shops, hospitals, gymnasiums, water systems and electric lighting. Practically all the work of installing, equipment and repairs is done by the students, boys and girls. In these institutions, besides class work, there is both practical and theoretical instruction in blacksmithing, boat building, carpentry, cooking, house construction, sewing and sanitation. Where it is possible there is practical gardening in raising vegetables. Applications for admission are in such numbers that it was intended to provide accommodations for 150 at each school, as soon as means were available.

AGRICULTURE. There were four agricultural experimental stations in operation. The Matanuska station, in that valley, was specializing in dairying, under such favorable conditions that the industry can be a success, when there is a large demand. The station had a herd of 40 crossbred cattle. A creamery was established in July, and from a farm near Palmer the first shipment of butter was made. Since Alaska imported 1,400,000 pounds of butter in 1927, the prospects should be good. The station of Fairbanks experimented in plant breeding. Its success with grains was shown by the crop of 60 tons of wheat; most of it was milled in the Fairbanks flour mill. Sitka devoted itself to horticulture, and demonstrated the practicability of growing many kinds of fruit and vegetables in home gardens. Kodiak had a large herd of Galloways, which subsist on the local native grasses. In southeastern Alaska there were about 400 dairy cattle, which furnish the towns with milk.

U. S. COAST AND GEODETIC SURVEY. Important survey work was done along the uncharted shores in southeastern Alaska, supplemented by tide and current observations. Magnetic and seismographic observations were regularly made at Sitka and elsewhere.

U. S. ARMY. The Corps of Engineers continued its river and harbor work. The redredging of Nome harbor was completed. Wrangell Harbor was improved, and the work on Wrangell Narrows was in progress. These improvements for the safety of navigation were supplemented by the erection of 23 aids to navigation by the Lighthouse Service. The number in operation is 765.

INCIDENTAL. A great need according to the Governor was adequate public buildings. These include a capitol, delinquent school, insane asylum, contagion ward, and tuberculosis hospital, essentials for every civilized state.

ALBANIA, ăl-bā′nĭ-ȧ. A geographical district in the Balkans consisting of the former Turkish provinces of Scutari and Yanina, and parts of the Turkish vilayets of Monastir and Kassova. The boundaries were fixed as a result of the work of an international commission appointed in 1922, which did not complete its labors, however, until 1925. The probable area of the country is estimated at about 17,347 square miles; the population is estimated at 831,877, of whom 584,675 were Mohammedan, 158,215 Greek Catholic, and 88,987 Roman Catholic. The country is divided into eight provinces named after the chief towns. The latter, with their estimated populations are as follows: Tirana, 12,000; Scutari, 32,000; Korytza, 24,000; Elbasan, 13,000; Argyrocastro, 12,000; Berat, 8500; Valona, 6500; and Durazzo, 5000. The principal race groups are the Ghegs in the north and the Josks in the south. Agriculture is very primitive, and large tracts of land remain uncultivated. The chief products are: Tobacco, wool, olive oil, corn, and cattle. The mineral wealth is reputed to be considerable although almost entirely undeveloped. In August, 1927, there were six concessions in Albania for the purpose of drilling for oil. The positive results obtained up to that time were not considerable, although they were sufficiently encouraging to continue the exploration undertaken, as the surveys justified the hope that a large supply of oil will be found in Albania. There are also valuable forests. A coarse native cloth is manufactured from wool, but for the most part such manufactures as exist in the country pertain to the working up of agricultural products.

In a study of Albanian trade conditions published by the United States Bureau of Foreign and Domestic Commerce in October, 1927, it was stated that the economic development of Albania has been handicapped by natural conditions—mountains, primitive roads, lack of railroads, and undeveloped natural resources. As an agricultural country, with practically no native industries, it is entirely dependent on imports of manufactured goods. The introduction of foreign goods in general has been rather slow, but imports have continued to expand during the post-war period. Exports, although still inadequate to pay for imports, have shown a greater relative increase than imports since 1921. Remittances from Albanians abroad were believed to offset to a certain extent the large adverse trade balances. Imports and exports for the years 1921 to 1926 were valued as follows:

ALBANIAN EXPORTS AND IMPORTS [a]

Year	*Imports*	*Exports*	*Unfavorable balance*
1921...........	$3,520,422	$422,739	$3,097,683
1922...........	2,335,818	571,818	1,764,000
1923...........	4,520,856	1,571,026	2,949,830
1924...........	3,955,518	2,389,845	1,565,673
1925...........	4,208,380	3,112,503	1,095,777
1926...........	4,800,141	2,309,649	2,490,492

[a] Conversions at $1 = 5.18 gold francs.

The fluctuations in exports are attributable to variations in the size and quality of crops, the poor yields of 1926 having been responsible for the decline in exports as compared with 1925. A forecast for 1927 of the exports for that year was expected to reflect this decreased purchasing power. The chief articles of import for 1926 were: Cotton manufactures, woolen goods, sugar, coffee, rice, machinery, kerosene, gasoline, and leather. The chief articles of export for the same year were: Cheese, grains, eggs, skins and hides, lambs, and wool. Italy buys most of the exports and supplies the bulk of the imports. The United States bought goods to the value of $386,420 in 1926 and sold $108,850 worth of goods in the same year.

Albania was declared an independent country by the general in charge of the Italian forces, June 3, 1917, and a provisional government was set up at Durazzo. Under the constitution adopted in 1925 there is a parliament with 54 members elected every four years and a senate of 18 members, 12 elected and 6 nominated. The president, elected for seven years by the house and senate sitting as a national assembly, enjoys about the same executive powers as the president of the United States. President at the beginning of 1927, Ahmed Zogu (elected Jan. 31, 1925).

History. Throughout the year discussions were rife concerning the Treaty of Tirana signed between Italy and Albania in the fall of 1926 (see preceding Year Book). A feeling of unrest was engendered not only in the Balkans but elsewhere in Europe. Although stoutly denied both at Rome and in Albania, there was no doubt in the minds of competent observers that this pact makes of Albania little more than a protectorate of Italy. The chief basis of this claim is the provision of the treaty which permits Italy to intervene with armed forces if their reciprocal interests are threatened by a hostile power. Needless to say this treaty was regarded in a very suspicious light by Jugo-Slavia as a direct menace aimed at her and her position in the Balkans. As will be noted in the history of that country, she made advances to practically every state in Europe to form a counter treaty to offset Italy's undoubted status in the Balkans. She approached France at first but was not at all warmly received until she flirted with Germany and her press, as well as that of Germany, revived the old Mittel Europa idea and threatened France's predominant position on the continent. After several diplomatic exchanges a treaty between France and Jugo-Slavia was signed. Thus was laid the foundation of Italo-Franco rivalry in the Balkans and many observers thought that the old Balkan powder box of the years before the World War had been refilled with tinder and was just waiting for the match to set fire to a "bigger and better" war. Time alone can tell.

The fears of Jugo-Slavia were justified to a large extent by the increasing activity taken by Italy and Italians in internal affairs, under the friendly leadership of Ahmed Zogu, the pro-Italian leader of Albania. Internal improvements, particularly connected with highways, topographical surveys, and railroads, were being carried out during the year under the supervision of Italian engineers and with Italian money loaned to Albania for the purpose. The army was undergoing a complete reorganization at the hands of Italian officers and was greatly enlarged. It was claimed in some quarters that the amount of Italian loans, with their interest and amortization charges, was greater than the Albanian budget could bear, particularly when considerably more than half of this budget was spent on military items. The modern conception of imperialism teaches that economic penetration is just as effective and far more moral than the old idea of conquest and exploitation.

In order to allay the fears of Jugo-Slavia, and at the suggestion of Italy, Ahmed Zogu offered the same terms to Jugo-Slavia that had been made with Italy, but Jugo-Slavia refused to have anything to do with him. Jugo-Slavia wished to have the entire matter of Albania reviewed by the League of Nations, but France, Great Britain and Germany were opposed to such a scheme because of possible fear of Mussolini.

They suggested that the entire matter be ironed out by means of direct diplomatic exchanges between Rome and Belgrade. The latter capital was loath to do this, however, and the European press was very mournful because of the hesitancy of the League to act and because of the obvious possibilities of war.

A crisis between Albania and Jugo-Slavia was precipitated on June 5, when a Jugo-Slavian official was arrested at Tirana charged with espionage. The representatives of Jugo-Slavia left Tirana immediately and the Albanian representative left Belgrade under protest, on the grounds that he did not see any cause for a diplomatic break in the incident and because he thought it would be possible to settle the matter through diplomatic channels. Significantly enough the French took charge of the Jugo-Slavian affairs at Tirana and the Italians of Albanian affairs at Belgrade. The matter was laid before the League of Nations, Albania limiting her side to the question of the arrest only, while Jugo-Slavia evidently desired to have the entire matter of Albania taken up, with particular reference to the Tirana treaty. Great Britain, France, Germany and Italy suggested that the matter be settled by Albania freeing the arrested person, and that Jugo-Slavia should recall the note severing diplomatic relations. Both sides agreed to this formula and the tension was temporarily relieved. The year closed without any other untoward incident, with the exception of the murder of the brother-in-law of Ahmed, who was ambassador to Czechoslovakia, on October 14. He was known as an anti-Italian and attempts were made in the Belgrade press to lay the crime at the doors of Mussolini, despite the fact that the assassin declared he had acted in the matter entirely upon his own initiative.

ALBERTA, ăl-bûr′tȧ. A northwestern province of Canada, formerly consisting of a large part of the Northwest Territories; bounded on the east by Saskatchewan, on the west by British Columbia, and on the south by the United States. Area, 255,285 square miles; population (1926), 607,584, as compared with 496,442 in 1916. The rural population in 1926 numbered 374,614, and the urban, 232,970. Chief towns with their populations according to the census of 1926: Calgary, 63,513; Edmonton, 65,163; Lethbridge, 10,893; and Medicine Hat, 9536. The movement of population in 1925 was: Births, 14,924; deaths, 4693; marriages, 4355.

Agriculture is the chief occupation of the province but there are valuable deposits of coal, natural gas, and petroleum. Besides the raising of grain, livestock and dairying are the chief industries. The acreage and crop of the principal grains in 1926 were as follows: Wheat, 6,276,193 acres, 119,434,000 bushels; oats, 2,478,494 acres, 88,182,000 bushels; barley, 513,000 acres, 14,401,000 bushels; rye, 130,801 acres, 2,093,000 bushels; flax, 5000 acres, 36,000 bushels; mixed grains, 15,200 acres, 444,000 bushels. It has been reported that Alberta contains 17 per cent of the coal reserve of the world. In 1925 the output was 5,883,394 tons. In the same year the value of the natural gas output was $2,700,025. The total mineral production in 1925 was valued at $25,005,718.

Executive power is nominally vested in a lieutenant-governor appointed by the Dominion government, but it is actually vested in an executive council or cabinet. Legislative power is in the assembly, which is elected by direct vote including woman's suffrage. Lieutenant-governor in 1927, Dr. W. Egbert; prime minister, John Brownlee. There were 59 members in the legislature, including 40 United Farmers; 12 Liberals; 3 Laborites; 3 Independents; and 1 Conservative. See Canada.

ALDERSON, Lieutenant-General Sir Edwin Alfred Hervey. British soldier, died at Lowestoft, England, December 14. He was born Apr. 8, 1859, and entered the army, in the Royal West Kent Regiment, in 1878. He became a captain in 1886, and advanced through all the ranks, serving with distinction in India, in the first and second Boer Wars, in Egypt and in the Nile expedition. He became a major general in 1906 and a lieutenant general in 1914. He was chosen to command the First Canadian Division in the War, and later took command of the Canadian Corps. He won medals and other honors in virtually every campaign in which he was engaged, and became a Companion of the Order of the Bath in 1900 and a Knight Commander of the same order in 1916. He was honored by France also, with the rank of Commander of the Legion of Honor. General Alderson was an aide-de-camp to Queen Victoria and to King Edward VII. He was a noted hunter and yachtsman as well as soldier, and an author. His published works were: *With the Mounted Infantry and Mashonaland Field Force* (1896); *Pink and Scarlet, or Hunting as a School for Soldiering* (1900), and *Lessons from One Hundred Notes Made in Peace and War.*

ALDRICH, Sherwood. American copper operator, died in New York, N. Y., July 2. He was born at Riverhead, N. Y., Sept. 4, 1868, and was educated at Riverhead Academy and at public schools in Brooklyn, N. Y. He graduated from the New York University Law School in 1889, and was admitted to the New York bar. In 1890 he went to Colorado, becoming actively interested in copper mining. He served as president of the Ray Consolidated Copper Company until it was absorbed by the Nevada Consolidated Copper Company, of which he became a director and vice president.

ALEXANDER, Charles Beatty. American lawyer, died in New York, February 7. He was born at New York City, Dec. 6, 1849, and graduated from Princeton in 1870 and from the Columbia University Law School in 1872, in which year he was admitted to the New York bar. He was connected with the firm of Alexander & Green until his retirement in 1912. He was for some time counsel and later director of the Equitable Life Assurance Society of the United States, a director of the Tri-State Land Company, a trustee of the Equitable Trust Company, and at one time a director of the Mercantile Trust Company, the Windsor Trust Company, the Hocking Valley Railroad Company, the Mount Morris Bank, the International Banking Corporation, the International Bank, and president of the Alexander Estate, Inc. In addition to his legal activities he was interested in education, and was elected a regent of the University of the State of New York in 1913; on the expiration of his term in 1925 he was reëlected for the term expiring in 1927. He was chairman of the committee on state science work and the State Museum, and member of the committees on higher education, State Library and law legislation. He was a trustee of Princeton University for many years, and from it received the degree of LL.D. in 1895. He was similarly honored by Washington and Jefferson in 1902 and by New York University in 1923, and received the degree of Litt.D. from Washington and Lee in 1913. He was a delegate to the Democratic national conventions of 1912, 1916, and 1920, and was a national adviser of the Democratic party. Alexander Hall at Princeton University was built by his wife and presented to the university in 1892. Mr. Alexander delivered many important addresses, including the one to André Tardieu, French high commissioner to the United States, Apr. 6, 1918, and he presided over and delivered the address at the annual meeting of the American Academy of Political and Social Science in the same year. He was a member of many important organizations in New York, including the State Bar Association, the Association of the Bar of the City of New York and the Chamber of Commerce; also of the Pan American Society of the United States, the Pilgrims of the United States, and various hereditary and patriotic societies, including the General Society of the Cincinnati, of which he was a vice president. For services during the World War he was honored with the order of the White Eagle, third class (Commander) by Prince Regent Alexander of the Kingdom of the Serbs, Croats and Slovenes, in 1919; with the Crown of Italy by the King of Italy, in 1920; and he was made an Officer of the Legion of Honor by the French Government in 1925.

ALFALFA. The alfalfa hay production of the United States in 1927 as reported by the Department of Agriculture amounted to 31,781,000 tons as compared with 27,575,000 tons in 1926, this increase having been due largely to a favorable season and the resulting better yields in the North Central States which produce a large proportion of the crop. The production of alfalfa seed in 1927 was much smaller than the comparatively large crop produced in 1926. Provisional estimates placed the crop for this year at 42,000,000 to 45,000,000 pounds of country run seed, or seed as it comes from the thresher, while the preceding year the production reached 57,000,000 pounds. Unfavorable weather conditions, including early fall frosts, reduced the yield to a large extent in most of the leading seed producing States especially in Kansas, Nebraska, South Dakota, Montana and Oklahoma. An increase in production reported from Idaho, New Mexico, Arizona and Texas only partly offset the decreases in the principal producing sections.

Prices for clean seed during the fall of 1927 averaged about $14 per 100 pounds or nearly the same as the year before but somewhat higher in the sections of low production and lower in the sections of high production. Owing to later harvesting and threshing the movement of alfalfa seed from producers' hands was delayed but was more rapid in the southwestern producing area than in the northern sections, where, due to the smaller yield, prices were higher. The highest average prices for seed of common alfalfa in October were offered in South Dakota and the lowest in New Mexico. As usual Grimm alfalfa seed brought much higher prices than were received for seed of common alfalfa, and for good clean seed from $25 to $28 per 100 pounds was offered. For the year ended June 30, 1927, the imports of alfalfa seed amounted to 5,133,700 pounds, an increase of 585,400 pounds over the imports of the preceding fiscal year. The exports for the two years, as reported by the Department of Commerce, were 1,289,000 and 1,418,000 pounds respectively.

According to a notice issued by the Secretary of Agriculture under authority of the Federal Seed Act, all seed of alfalfa imported from South America must be stained an orange red color to the extent of at least 10 per cent of the seed in each container. The United States standards for alfalfa and other hay were amended by the Secretary of Agriculture as effective July 1, 1927. The class and grade requirements of alfalfa and alfalfa mixed hay are given in the *Handbook of Official Hay Standards*, United States Department of Agriculture, Washington, 1927. A decision was made during the year under the Federal Food and Drugs Act to the effect that alfalfa stems ground up cannot be classified as alfalfa meal and must be sold under a name descriptive of the article and in no way deceptive.

ALGERIA. A colony of France forming politically a part of France itself, situated in northern Africa. It comprises the two great divisions of Northern and Southern Algeria which in turn are divided as follows: Northern Algeria into the departments of Algiers, Oran, and Constantine; Southern Algeria into the territories of Ain Sefra, Ghardaia, Touggourt, and the Oases of Sahara. The total area, including the Algerian desert, is estimated at 1,060,000 square miles; population, including military forces, according to the census of Mar. 7, 1926, 6,064,865, of whom 5,552,640 were in Northern Algeria. The Europeans numbered 872,430. All but a small fraction of the population was in the towns and cities. Chief towns with their populations for 1926: Algiers, 226,218; Oran, 150,301; Constantine, 93,733 (these three being respectively the capitals of the provinces of the same name); Bône, 51,895; Tlemcen, 26,758; Sidi-bel-Abbes, 43,148; Blida, 24,758; Tizi Ouzon, 2944; Philippeville, 29,242; and Sétif, 26,677.

The race groups in the native population are principally Arabs, Berbers, and Kabyles, and the prevailing religion is Mohammedanism. The chief Christian church is the Roman Catholic which maintains an archbishop and two bishops. In 1924 there were 1485 primary schools with 108,090 pupils. In the following year there were 16 establishments for secondary education with 9716 pupils. For higher education there is a university at Algiers, with an attendance in 1925 of 1592 students, and there are special schools of commerce, hydrography, agriculture and the fine arts. There are also higher Moslem schools at Algiers, Constantine, and Tlemcen.

Production. Algeria possesses a small area of highly fertile plains and valleys near the coast, chiefly owned by Europeans. This region is scientifically cultivated and yields profitable returns from vineyards, cereals, etc. The remainder of the country is of limited value for agricultural purposes. The northern portion is mountainous and generally better adapted for grazing and forestry than agricultural pursuits, and a large portion of the native population is very poor. The chief crops in 1925 were wheat, 3,601,101 acres, with a yield of 1,037,857 tons; barley, 3,289,368 acres with a yield of 972,458 tons; oats, 632,717 acres with a yield of 235,503 tons. Other produce includes maize, potatoes, artichokes, beans, peas, tomatoes, flax, silk, and tobacco. The yield of wine was 273,287,080 gallons from an area of 512,732 acres. The production of olive oil amounted to 5,716,942 gallons from 7,799,627 trees. See table of production by countries under Agriculture.

Commerce. The exports in 1926 amounted to 3,129,222,000 francs and the imports to 3,533,019,000 francs. The chief exports were sheep, phosphates, wheat, wine, eggs, cigarettes, figs, and tobacco. The chief imports were sugar, petroleum, paper, clothing, automobiles, and other manufactured articles.

Finance. Including the supplementary extraordinary budget, the total budget for the year 1927 amounted to 895,371,968 francs revenue, and 895,358,851 francs expenditure. The chief sources of revenue in the 1927 budget were taxes of various kinds, posts, telegraphs, telephones, and stamp and other duties. The principal items of expenditure were services on the public debt, administration, education, and public works.

Communications. In 1925 there were 2616 miles of railway open for traffic. The railway receipts for that year amounted to 212,908,551 francs. In 1926, 4147 vessels of 6,441,844 tons net entered and 4476 vessels of 6,833,710 tons cleared from Algerian ports. On Jan. 1, 1925, the mercantile marine of Algeria consisted of 432 vessels of 94,323 tons net.

Government. The central executive authority of the local government is the governor-general who directs all the services with the exception of the non-Mussulman departments of public instruction, justice, worship, and the treasury, which are each under a separate ministry. The governor-general, with the minister of the interior, prepares the budget which is voted by the so-called Financial Delegations and by the Special Council. The colony sends to the home parliament one senator and two deputies for each department. On Nov. 19, 1927, Pierre Bordes, the Prefect at Algiers, was appointed governor-general of Algeria to succeed former Gov.-Gen. Maurice Violette. The new governor-general was said to enjoy the confidence not only of the French government but of the natives of Algeria as well.

ALLEGHENY COLLEGE. An institution of higher learning at Meadville, Pa.; non-sectarian in policy but under the patronage of the Methodist Episcopal Church; founded in 1815. The enrollment for the fall of 1927 was 573, distributed as follows: graduate students, 2; seniors, 114; juniors, 110; sophomores, 164; freshmen, 183. For the 1927 summer session the registration was 89. The faculty numbered 38. The productive funds of the college amounted to $1,400,000, and the income for the year was $333,846. The library contained 68,000 volumes. President, James A. Beebe, D.D., LL.D.

ALLERGIC DISEASES. It had been realized for some years that there were groups of diseases which were due to the extreme sensitiveness of certain individuals to certain foreign substances in the air and food. When these particles are inhaled the reaction of supersensitiveness is manifested as bronchial asthma, hay fever and the paroxysms of whooping cough, and when swallowed with the food by urticaria and other forms of eruption. Not very much is known of these substances which comprise horse dandruff, the pollen of flowers, etc. In addition to group sensitiveness there is also an individual sensitiveness or idiosyncrasy exhibited by many people toward special drugs and food articles. The particular offending substance may be recognized by diagnostic skin reactions and once this is known it is possible to diminish or abolish the sensitiveness by habituating the patient over long periods to repeated injections of minute quantities of the said substance, a tedious and uncertain process.

Quite recently a way has been found to control the respiratory group of these affections by excluding these foreign particles from the inspired air. The basic work in this direction has been carried out at the University of Leyden, Holland, by Storm van Leeuwen, W. Einthoven, Jr., and W. Kremer (*The Lancet*, London, June 18, 1927). These observers had found that it was possible to reduce this oversensitiveness as far as bronchial asthma was concerned by injections of foreign protein (tuberculin was used), but that at least half of the asthmatics received no benefit from this resource. In place of attempts to exclude certain special irritants from the air the authors sought to rid the latter of all impurities by producing an atmospheric condition like that encountered at high altitudes. Under ordinary conditions the air contains what are termed climatic allergens (particles able to provoke asthma and other allergic diseases). Two types of these were recognized, one for out-of-door air and the other for the air of private houses (in the larger, well ventilated public buildings the air is free from these substances). The great majority of sufferers are susceptible to the last named only. The authors had constructed a series of sleeping cabinets known as allergen-proof chambers which readily could be installed in any private house, the air being purified either by refrigeration, filtration or electrical process. For two years they experimented with hundreds of patients suffering from bronchial asthma, whooping cough and tuberculosis. For some reason hay fever was not mentioned in this connection. For details see Asthma and Whooping Cough.

ALLIANCE FRANÇAISE, Fédération de l'. An association of clubs and groups formed for the purpose of encouraging and furthering the study and cultivation of the French language, literature, art, and history in the United States. It was established in 1902, and in 1927 comprised over 250 local branches, including French Alliances, affiliated societies, and French clubs in universities, colleges, and schools. Twenty new groups were added to the Fédération during 1927. Each year the Alliance Française brings from France one or more lecturers who are prepared to speak before all the affiliated societies and clubs wishing to hear them. It also organizes lecture tours for distinguished French travelers, and for French lecturers who live in America. It assists in organizing courses in the French language and literature, in cooperation with the leading universities, and encourages its groups to engage in dramatic performances and debates in French. The official lecturers from France during the year 1926–27 were Mme. André Alphandéry, writer and lecturer, M. Daniel Michenot, well-known journalist, and M. Maurice Pillet, archæologist. The Assemblée Générale of the Fédération attended by representatives of the various groups was held at the Hotel Plaza, New York City, on Apr. 22, 1927. On that occasion was celebrated the 25th anniversary of the founding of the Fédération; M. Paul Claudel, the French Ambassador to the United States, presided and there were two special delegates from France: Monseigneur Baudrillart, who represented the French Academy, and M. Paul Labbé, General Secretary of the Alliance Française de Paris. The official organs of the Fédération are *l'Echo de la Fédération* and the *Bulletin Officiel*. Headquarters are at 32 Nassau Street, New York City. Officers for the year 1927 were: Frank D. Pavey, president; William Nelson Cromwell, general vice president; Albert Blum, president of the executive committee; James N. B. Hill, treasurer; Felix Weill, general secretary.

ALSACE-LORRAINE, ȧl′zȧs′lōr′ān′. The provinces taken from France by Germany after the Franco-Prussian War of 1870–71 and restored to France after the armistice of Nov. 11, 1918; constituting at present the three French departments of Bas-Rhin, Haut-Rhin, and Moselle. Total area, 5605 square miles, total population in 1921, 1,709,749. The area and population are distributed among the three departments as follows: Bas-Rhin (formerly Lower Alsace), 1848 square miles, and 651,686 inhabitants; Haut-Rhin (formerly Upper Alsace), 1354 square miles, and 468,943 inhabitants; Moselle (formerly Lorraine), 2403 square miles and 589,120 inhabitants. Alsace-Lorraine contains the only petroleum fields of commercial importance in France, but supplies only about 10 per cent of the total consumption. Iron ore is mined in large quantities. Potash production was affected favorably by the agreement between the Alsatian and German mines for a division of the world market. In January, 1926, the autonomy of the port of Strassburg was established.

ALUMINUM. According to the U. S. Bureau of Mines the value of the new aluminum produced in the United States in 1926 was $37,583,000, or 3 per cent greater than in 1925, when the production amounted to $36,430,000. The secondary aluminum production in 1926 was $23,368,000 in value, or 4 per cent less than in 1925 when the total for the secondary metal was $24,816,000. The secondary aluminum amounted n quantity to 20,500 short tons as metal and 23,700 short tons as the aluminum content of casting metals. The imports of aluminum into he United States, including the metal in the crude form, scrap bars, strips, plates, sheets and all manufactures, amounted to $16,779,377 n 1926, as compared with $10,106,767 in 1925; while the exports in 1926 were $4,452,303, as ompared with $6,057,071 in 1925. In 1927 it was stimated that the domestic production of aluminum was greater than in 1926, while the imports continued heavy, being in excess of those or the corresponding months of 1926. There ere also increased exports, both of crude aluminum and of manufactured materials, in 1927. he Aluminum Company of Canada was active in production at its plant at Arvida in the Saguenay River Valley during the year, while in the United States there were under construction in North Carolina an important dam on the Yadkin River and also one on the Little Tennessee River to develop power so that the aluminum works in this district could be extended and difficulties derived from lack of power during time of drought eliminated. There were under construction during the year new aluminum works in France, Scotland, Norway and Italy, while a plant in Spain began operation in November. An increased market for aluminum and aluminum alloys was found in airplanes and seaplanes, where the structural parts were largely composed of aluminum alloys and the hulls and wings covered with aluminum or aluminum-alloy sheets. A new use of aluminum was in the manufacture of furniture, while aluminum was finding an increased application in railway passenger coaches, street railway cars and buses, resulting in a saving of from 15 to 40 per cent in weight; in structural and architectural work, aluminum castings and sections being more widely used; and also in the form of aluminum shingles and roofing materials. See also BAUXITE.

ALVEX, äl-ves, MRS. CARL. American concert contralto and teacher, died at New York, March 23. She was born at New York in 1862, and received her entire musical education from Carl Alves, a celebrated teacher, to whom she was married in 1884. After the death of her husband, in 1899, she retired from the concert stage and devoted herself to teaching. From 1905 to 1914 she lived in Leipzig, Germany. At the height of her fame she was one of the most prominent concert and oratorio singers in the United States, appearing with all the great orchestras and at all the important festivals.

ALVORD, BENJAMIN. Brigadier-General, U.S.A., retired, died at Washington, D. C., April 13. He was born in Washington, D. C., May 15, 1860, the son of Gen. Benjamin Alvord (1813–84), Paymaster-General, U.S.A., and graduated from the U. S. Military Academy in 1882. Commissioned as second lieutenant, he was with the 20th U. S. Infantry until the outbreak of the Spanish American War when he was promoted to major in the U. S. Volunteers, serving as chief ordnance officer and in other capacities. He returned to the regular service as major in the 25th Infantry, and in 1905 was made lieutenant-colonel in the Adjutant General's department, being promoted to a colonelcy in 1913 and serving in the department for the remainder of his active military service. During the Philippine insurrection he was brevetted for "conspicuous gallantry" in action against insurgent forces at Cainta, Luzon, Mar. 16, 1899. He was at various times instructor at the Infantry and Cavalry School and at West Point, adjutant-general of the Department of Northern Luzon in 1901, chief of staff in the expedition to Vera Cruz in 1904, and adjutant-general of the Western Department in 1917. At the time of the organization of the American Expeditionary Forces he was appointed brigadier-general and accompanied Gen. John J. Pershing to France as his first adjutant-general. He served throughout the War. On his return to the United States he was appointed adjutant-general of the Ninth Corps Area at San Francisco, and later assistant to the adjutant-general at the War Department in Washington. He received the Distinguished Service Medal for exceptionally meritorious service during the War. He retired in May, 1924, and after his retirement was stationed at the Soldiers' Home as secretary of its Board of Governors.

AMERICAN ASSOCIATIONS AND SOCIETIES. For various scientific and other organizations whose official titles begin with the word American, see under the important descriptive word of the title.

AMERICAN LEGION. An organization of World War veterans chartered by Congress "to uphold and defend the Constitution of the United States; to maintain law and order; to foster and perpetuate a 100 per cent Americanism; to preserve the memories and incidents of the association in the Great War; to inculcate a sense of individual obligation to the community, state and nation; to combat the autocracy of both the classes and the masses; to make right the master of might; to promote peace and good will on earth; to safeguard and transmit to posterity the principles of justice, freedom and democracy; to consecrate and sanctify the comradeship of the members by devotion to mutual helpfulness." On Sept. 19, 1927, the membership was 712,526. The ninth annual convention was held in Paris, Sept. 19 to 24, 1927, with a delegate attendance of 1077, representing every state, the District of Columbia, five territorial and four foreign departments.

The retiring national commander, Howard P. Savage, in his annual report to the convention, cited the carrying out of the main objectives set for the year by the previous convention: community service, and the increasing of the membership by 39,297 over the previous year. The convention in Paris, which was attended by approximately 20,000 members of the Legion and members of their families, took the form of a great pilgrimage to the graves of the American World War dead in France, and of a gesture of good will to the nations of Europe. International amity was expressed at a series of elaborate entertainments and social events given by the French Government and veterans' organizations for the visitors. The convention reaffirmed the Legion's stand on the carrying out of the provisions of the National Defense Act of 1920 and the passage of the Universal Draft bill, and decided that community service should continue to be the major activity in 1928. Distinguished guests of the convention included: Gen. John J. Pershing; Marshal Ferdinand Foch; President Doumergue; Premier Raymond Poincaré; Aristide Briand, minister of foreign affairs; Paul Painlevé, minister of war; Louis Marin, minister of pensions; André Tardieu, minister of public works; Marshal Joffre; Marshal Pétain; Sheldon Whitehouse, American chargé d'affaires; and Senator L. D. Tyson, of Tennessee.

Following the close of the convention in France a group of 250 prominent members of the Legion, led by Commander Savage, carried the greetings of the American veterans to other allied countries, going to Rome, where they were received by King Victor Emmanuel III; to Brussels, where they were received by King Albert I; and to London, where King George V received them. The convention movement, which was the largest peace-time trans-Atlantic movement in history, was handled on twenty-four official ships of five different lines. The *Leviathan*, the largest ship under the United States flag, was the flagship, carrying Commander Savage to and from the convention.

A ratification convention was held in New York City on Oct. 18, 1927, to ratify the proceedings of the meeting in Paris, which were not official because the convention was held outside of the limits of the United States. It was decided to hold the 1928 convention at San Antonio, Texas, under action of the 1926 convention at Philadelphia, Pa. *The American Legion Monthly*, with offices at 2457 East Washington Street, Indianapolis, Ind., was the official publication of the organization. The American Legion Auxiliary, composed of mothers, wives, sisters and daughters of Legion members, and La Société des 40 Hommes et 8 Chevaux, the funmaking branch of the Legion, both of which have national headquarters in the War Memorial Building at Indianapolis, coöperated in the activities of the Legion during the year. The officers elected for the year of 1927–28 were: Edward E. Spafford, New York, National Commander; J. M. Henry, Winona, Minn., Ralph T. O'Neil, Topeka, Kan., James T. Raftis, Colville, Wash., Paul R. Younts, Charlotte, N. C., and Dan Spurlock, Shreveport, La., Vice Commanders; James F. Barton, Fort Dodge, Ia., Adjutant; the Rev. Gill Robb Wilson, Trenton, N. J., Chaplain; Eben Putnam, Wellesley Farms, Mass., Historian; Bowman Elder, Indianapolis, Ind., Treasurer; Scott W. Lucas, Havana, Ill., Judge Advocate. The national headquarters were located in the War Memorial Building, Indianapolis, Ind.

AMERICAN REVOLUTION CELEBRATIONS. See CELEBRATIONS.

AMHERST COLLEGE. An institution for the higher education of men, at Amherst, Mass.; founded in 1821. For the 1927 fall term 764 students were enrolled, including: fellows, six; graduate students, eight; seniors, 140; juniors, 164; sophomores, 210; freshmen, 232; specials, four. The active faculty exclusive of emeritus and administrative officers and those on leave, numbered 69. The productive funds of the College amounted to $7,000,000, and the income for the year was $575,000. The library contained 151,000 books. Arthur Stanley Pease, professor of Latin, was at the June 18 meeting of the Board of Trustees elected the 10th president of the college, and inaugurated November 4.

AMMONIUM SULPHATE. See FERTILIZERS.

ANÆMIA, DIETARY TREATMENT. See FOOD AND NUTRITION.

ANÆMIA, PERNICIOUS. Minot and Murphy continued their activity in the domain of feeding patients with their diet "rich in liver" (see YEAR BOOK for 1926) and had treated in this manner more than 100 cases for intervals ranging from three years down to three months. At the same time Koessler and associates persisted in the use of the diet first recommended by them which was modified to include all the vitamins and not merely the fat soluble one. Wheat germ or its oil is an excellent source of vitamins A, B, D and E, and, when mixed with orange juice, which is rich in the C vitamin, all of these bodies are represented. Minot and Murphy thus far had seen no case which had failed to react favorably, while Koessler claimed that remissions set in in from eight to

14 weeks with return of the normal blood picture. The two diets do not differ in essentials, although Koessler differs from the majority in permitting considerable fat. Both papers are to be found with joint discussion in the *Journal of the American Medical Association* for Sept. 3, 1927. The dietetic principles involved in these two plans of treatment have been widely adopted by clinicians throughout the world and the general verdict was to the effect that a positive advance has been made.

The belief that vitamin deficiency of some kind is a factor in the causation of pernicious anæmia led a number of physicians to apply to this affection the treatment of most service in rickets which is based on the view that lack of vitamin D is responsible largely for that condition. The particulars will be found in the article on RICKETS. Prof. G. Rosenow of the Medical Clinic of the University of Königsberg, having experienced some failures in the use of the Minot-Murphy diet, added to the latter the internal use of a newly isolated lipoid substance known as ergosterin which in addition had been subject to the action of ultraviolet light. This substance which is closely related to cholesterin is regarded as one of the best sources of vitamin D. He regards the combination of a specific diet with the antirachitic vitamin as superior to diet alone and also to the former treatment with arsenic and blood transfusion (*Klinische Wochenschrift*, August 13).

ANALGESIA, OBSTETRICAL. Despite the practical insuccess of the so-called "twilight sleep" in connection with the pain of childbirth, anæsthetists and obstetricians have not abated their attempts to bring about painless labor in a form capable of general application. To be ideal such a resource must be free from all danger and must also be free from technical difficulties which make it practicable only in maternity homes and in the hands of expert anæsthetists and nurses. The form of obstetrical analgesia which has been carried out in the Lying-In Hospital in New York for several years is not of course to be credited to 1927 and its details have repeatedly been described in medical journals but it is only recently that an authentic account of the method has been released to the public press. In the New York Sunday *World* for December 4 was published a long article on the history of a method evolved and carried out by Dr. J. T. Gwathmey, pioneer in and authority on new forms of anæsthesia and analgesia, and Dr. Asa B. Davis, equally well known as an obstetrician, who was chief of the Lying-In Hospital of New York. The use of the method has not been confined to that institution for it has been tested in the leading maternities of other large cities and the claims of its sponsors have been widely endorsed. The method is termed analgesia in place of anæsthesia because the women remain conscious throughout labor and able to coöperate with the obstetrician.

The analgesic substances injected are magnesium sulphate which is administered hypodermically, and ether in an oil emulsion which is given by retention enema. However, by these resources alone the analgesia would be a failure and the failure is turned into success by the further injection of quinine hydrochloride. No extravagant claims were made for the method but it was by far the best which had been devised and reduced greatly the pain of childbirth, while at the same time it was simple, and safe and applicable in home confinements even in the tenements. The per cent of normal labors was not unfavorably influenced by the treatment nor was the survival of the child in any way prejudiced.

The method up to 1927 had been used in over 10,000 confinements in New York in the Lying-In and other large maternities and had been tried out extensively in other large cities, notably Philadelphia and Chicago. The fact that there were hardly any authorities who were actively hostile to the method was striking when the tendency of the medical profession to look with suspicion upon newly advocated panaceas of any kind is considered.

ANALYTICAL CHEMISTRY. See CHEMISTRY.

ANCHER, MICHAEL PETER. Danish artist, died at Skagen, Denmark, September 20. He was born at Ruthsker, near Bornholm, June 9, 1849, and studied in the Copenhagen Academy. He began exhibiting in 1874, showing in that year "A Lying-In Room in Jutland." He devoted himself largely to the little fishing village of Skagen, at the extreme tip of Jutland, studying marine life and customs which found expression in numerous paintings. He was one of a group of Danish painters which centred in this fishing village, and in 1880 he married Anna Brondum, of Skagen, who also was a painter in a similar field. His chief works include: "Tavern Scene"; "Fishermen Launching Lifeboat"; "Lay Preacher Conducting Service on Skagen Beach"; "Fisherboy Returning From Seagull Hunt"; "Sunday Evening on the Beach"; "Two Young Girls"; "Boys at Meal"; "Mother's Reading Lesson"; "Will He Clear the Point?"; "Figures in a Landscape"; "Old Man Laughing"; and "Infant Class at Skagen."

ANDERSON, JOHN FRANCIS. American civil engineer and bridge builder, died at San Diego, Cal., January 24. He was born at Jemshog, Sweden, Dec. 30, 1848, and in 1869 went to America as a sailor. He began work as a laborer in the construction of the Union Pacific bridge across the Missouri River. Educating himself, he became active in bridge construction, building the river piers for the South Street bridge in Philadelphia in 1872 and constructing the foundations for the Iron Mountain Ry. bridge over the Arkansas River, at Little Rock, Ark., in the following year. In 1876 he was employed by the Government of Venezuela to supervise bridge work, and from 1876–79 he was engaged in similar work in England. He took part in subaqueous work under the Hudson River, between New York and Jersey City, in 1879–82, and in 1882–84 he was a member of the firm of Anderson & Barr which constructed many engineering works, including various bridge foundations; among them were those for the Hawkesbury Bridge, New South Wales, which were said to be the deepest foundations in the world at the time of their construction. He was active in other engineering construction works, including tunnels and lighthouses. He had interests in Cuba from 1891 until after the Spanish-American War. Mr. Anderson was the inventor and owner of patents for aërial bridges and for the pilot system of tunneling. He was a member of many technical societies, and received decorations from the Spanish and Swedish Governments.

ANDERSON, THE RT. REV. JOSEPH GUADENTIUS. Auxiliary Bishop of the Roman Catholic diocese of Boston, Mass., died at Dorchester, Mass., July 2. He was born at Boston, Mass., Sept. 30, 1865, and after graduating from Boston College with the degree of A.B., in 1887 began his studies at St. John's Seminary at Brighton, Mass., graduating from that institution in 1892 and being ordained priest in the same year by Archbishop John Williams. He was a curate of St. Joseph's Church, and from 1894–1904 was chaplain of the Massachusetts State Prison. In 1903 he became director of the Bureau of Catholic Charities, serving until 1908, when he was made diocesan director of charities and pastor of the newly created St. Paul's parish, Dorchester. At this time he was made a monsignor, and was made vicar general of the Boston diocese and prothonotary apostolic, Apr. 9, 1909. On July 25, 1909, he was consecrated Auxiliary Bishop of Boston, and on June 1, 1917, became pastor of St. Peter's Church, Dorchester. Bishop Anderson founded the Roman Catholic bureau for the care of neglected and dependent Roman Catholic children, was vice president of St. Elizabeth's Hospital, and was active in various institutions.

ANDORRA, ȧn-dōr′rȧ. One of the smallest republics in the world, under the joint suzerainty of the French president and the Spanish bishop of Urgel; situated in the valley of the Pyrenees. Area, 191 square miles; population, 5231, scattered in six villages. The inhabitants speak Catalan and are Roman Catholics. The government is under a council of 24 members which nominates a First Syndic in whom is vested the executive power.

ANEMIA, see ANÆMIA.

ANGOLA, ȧn-gō′lȧ, or **PORTUGUESE WEST AFRICA.** A colony on the west coast of Africa, belonging to Portugal since 1575, with the exception of the years 1641 to 1648 when it was held by the Dutch. Its present boundaries were assigned by conventions of May 12, 1886, Dec. 30, 1886, May 25, 1891, and June 11, 1891, separating it from the French Congo, Southwest Africa (afterward united with the Union of South Africa), Belgian Congo, and British South Africa (now Union of South Africa), respectively. Area, 484,800 square miles; population, according to Portuguese estimates, 4,119,000, but the native population was estimated as low as 2,124,361 in 1914. Capital, São Paulo de Loanda; other important towns, Kabinda, Ambriz, Novo Redondo, Benguella, Mossamedes, and Port Alexander.

There were 52 government schools, seven municipal schools, and two private schools, with about 2410 pupils altogether. The chief products are coffee, rubber, wax, sugar, vegetable oils, coconuts, ivory, oxen, and fish. Mineral products include malachite, copper, iron, petroleum, and salt, and gold has also been found. The latest trade statistics available are those for 1925 when the imports amounted to 253,146,000 escudos and the exports were 233,638,000 escudos. The bulk of both the export and import trade was with Portugal. Angola has its own budget, the revenues for which are largely derived from taxation and customs duties, although from time to time the home government grants a subsidy. The estimated revenue and expenditures for the year 1926–27 were 135,218,863 escudos and 193,187,692 escudos, respectively. In 1927, 818 miles of railway were open for traffic. The government is in the hands of a high commissioner vested with large powers, whose seat of government is at Loanda. The colony according to the charter of Oct. 15, 1926, is divided into 14 administrative districts, each under a governor.

ANHALT, än′hȧlt. A German free state, formerly a duchy of the German Empire, bounded by the Prussian provinces of Brandenburg and Saxony. Area, 888 square miles; population, according to the census of 1925, 351,471. Capital, Dessau, 70,241 inhabitants in 1925. Other cities with their populations in 1925 are: Bernburg, 34,178; Cothen, 26,588; Zerbst, 19,229; Rosslau, 12,306; and Coswig, 10,089. The majority of the population adheres to the Protestant religion. The estimated revenue and expenditure for the fiscal year, 1925–26 balanced at 21,225,000 marks. The public debt on Mar. 31, 1926, was 12,225,000 marks and the value of state property on Mar. 31, 1926, was 350,000,000. The government under the constitution of the free state of Anhalt dates from July 18, 1919, and by the law of Nov. 6, 1922, the administration is carried on by a ministry of state consisting of the prime minister or minister president and either one or two other ministers. As a result of the election held in November, 1924, the following parties were returned to the legislature: Socialists, 15; Middle Class Party, 14; Democrats, 4; Communists, 4; and National Socialist, 1.

ANIMAL DISEASES. See VETERINARY MEDICINE.

ANNAM, ăn-năm′. A protectorate belonging to France, forming a part of French Indo-China (q.v.), whose present status was established by the treaty of Feb. 23, 1886. Area, about 39,758 square miles; population in 1924, 5,171,986, including 1986 Europeans, exclusive of the military forces. Capital Hué, with a population of 60,611; largest town, Binh-Dinh, with a population of 74,400. The population is Annamite in the towns and along the coast, while Moi tribes inhabit the highlands. The products include rice, cotton, corn, and other cereals, mulberry, the arica nut, cinnamon, tobacco, sugar, betel, manioc, and bamboo. The forest products include coffee, dye, medicinal plants, caoutchou, and cardamoms. Raw silk is also produced. Probably the most important product is rice. Of the minerals, copper, zinc, coal, hematite, iron and salt are worked to some extent. Exports in 1925 totaled 40,620,041 francs; imports, 46,298,171 francs. The nominal head of the government is the king, but actual power is vested in the French Resident Superior. French troops are in occupation of a part of the citadel in the capital. King in 1927, Bao-Dai, who succeeded to the throne Nov. 6, 1925. During his minority the government is in the hands of a regency Council. A chamber of representatives of the people was established in 1926.

ANNIVERSARIES. See CELEBRATIONS.

ANTHROPOLOGY. A survey of the year 1927 shows it to be one of those interim periods marked by great activity in expeditions and inquiries but furnishing little in the way of reports of achievements. The absence of published results was most noticeable in the fields of ethnography and linguistics, while archæology held its own. To compensate for this deficiency, however, there appeared a number of general and theoretical works. It was significant that American publishing houses issued a number of these, a departure of recent years.

The noticeable improvement in housing conditions in Europe, long delayed by the War and post-war economics, was indicated by the movement of several museums into new quarters.

Great stimulus was given to the study of linguistic work among American Indians during the year by a subvention of $10,000 a year for five years, from the Carnegie Corporation through the American Council of Learned Societies. With characteristic energy the programme of reaching the hitherto unrecorded stocks was undertaken by the committee in charge, F. Boas, E. Sapir, and L. Bloomfield. A few years should see adequate reports on those among the fifty-seven linguistic stocks now on the verge of extinction.

Archæological investigations in the Southwestern United States were progressing at a rapid rate. In place of the handful of workers of two decades previously, their number in 1927 could be reckoned by the score; yet their activities on behalf of frequently rival institutions remained largely uncoördinated. Hence the great importance of the newly founded Museum and Laboratory of Anthropology at Santa Fe, which had its inception largely through the efforts of A. V. Kidder. This was to have the function of directing attention to areas needing investigation and placing workers there, as well as a clearing house for finds and information. Its success as a coördinating agency was assured by the election to the board of trustees of representatives of all the major institutions interested in this field.

THEORETICAL ETHNOLOGY. The widely divergent views raging about that most aggravated problem of *Culture: The Diffusion Controversy* (New York) was summarized by G. E. Smith, B. Malinowski, H. J. Spinden, and A. A. Goldenweiser. Spinden admirably refutes the specious argument of Smith that all significant elements of culture had their origin in Egypt and thence diffused, by showing the independence of New World development. Malinowski scores Smith's mechanical view of diffusion, holding that the heart of the problem lies in defining the adaptations that a diffused trait suffers in its wanderings. Goldenweiser equally insists that no mere juxtaposition of diffusion vs. independent invention of civilization solves the significant problems of culture development. Smith vigorously denies that traits have independently arisen more than once, that any general "psychic unity of mankind" exists. Yet R. R. Marett points out that *The Diffusion of Culture* (Cambridge) itself demands a psychic unity, if nothing more than a common imitative habit.

The method of systematic comparison of cultures in a restricted area is successfully applied to *An Analysis of Southwestern Society* in the United States by W. D. Strong (*Amer. Anth.*, 29, 1). It has long been recognized that a complex of clan-house, priesthood, and fetish jointly heritable in a maternal or paternal lineage is fundamental in Pueblo society. Strong shows that this is demonstrable among Pima and Papago to the west, and at the hand of his own novel data, is basic in Southern California. Furthermore it is usually associated with a dual organization from the Rio Grande to Central California. The similarity of the complex and its fundamental importance throughout the area warrants the conclusion that it was anciently diffused. Subsequent movements of Yuman and Shoshonean peoples on the Colorado River interrupted the continuity of its distribution. The different reckoning of descent in the lineages, patrilineal in Southern California and Eastern Pueblos, matrilineal in West Pueblos, he interprets as originating from differences in house-owning and fetish custodianship. This is a matter of considerable theoretical importance; like Boas and Lowie he looks to a multiplicity of origins of clans (sibs) instead of the older view of the social evolutionists, a single origin.

A faith that the solution of fundamental problems of culture growth may best be approached through simple cases brings a revaluation of data on *Arrow Release Distributions* by A. L. Kroeber (*Univ. Cal. Publ. Amer. Arch. Ethn.*, 23, no. 4). The total number of ways in which the motor habits involved in arrow release can be fixed is small. They are essentially two: either the arrow alone is grasped or the string, but combinations are possible. If chance alone fixed tribal habits, the distribution of these methods would be sporadic. So far as string-pull methods are concerned this is not so; the distributions are continuous. Arrow-pull methods (used by the naive archer) are sporadic or at least peripheral. The supposition is that the habits are not hit upon at random but are the result of but a few origins with subsequent diffusion.

The wide variability in methods of *The Disposal of the Dead* suggests to the same writer (*Amer. Anth.*, 29, 308) that their fluctuations place them in a class with fashions. "Emotion evidently attaches secondarily to social behavior much as thought does." Hence "the generalization that intensity of feeling regarding any custom is likely to be a poor criterion, if any, of its permanence."

The fundamental question of how far mental traits and historical conditions contribute to cultural forms leads F. Boas to consider the *Stylistic Aspect of Primitive Literature* (*Jour. Amer. Folk-Lore*, 38, 329). Songs (poetry) and tales are universal in their distribution hence must be considered primary forms of literary activity. Repetition, frequently rhythmic, is also universal. Unlike Bücher and Wundt, who saw the origin of rhythms in work movements and dance, Boas holds that the pleasure of verbal repetition is equally fundamental. Since these traits are universal they must be laid to the common psychic habits of man. On the other hand the similarity of literary traits which are common to large areas regardless of race, but are not universal, must rest on historical factors. Such are proverbs, riddles, epic poetry, and the moralizing fable common in the Old World but unknown in the New. Similarly, motives of tales are not alike in all areas, nor the tendency to combine distinct tales, but are historically determined by the diverse cultural interests of each area.

The most fertile development in anthropology in 1927 was in the study of cultural variability. Its aim is to establish under what conditions new cultural forms make their appearance. *A Study of Folk Song Variants* in Jamaica by H. H. Roberts (*Jour. Amer. Folk-Lore*, 38, 149) shows that the thread of a song is retained in all local forms despite a well-realized welcome for changes in detail. Tempos, rhythmic patterns, and pitch levels are retained more closely than melodic features. Words suffer an unusually heavy attrition.

The old descriptions of cultures presented a norm of habits and actions which it was tacitly assumed was followed without variation by all the members of the particular society. The modern view recognizes individuality in primitive as well as civilized communities. Every individual participates in the culture but his life is a special variant of the norm. In other words, the norm has no more actuality than an arithmetic average. This is the position of L. Spier (*Amer. Anth.*, 29, 269); that the religion of a group, e.g., is the sum of all the individual religious formulations in the group. The individual's belief represents a special configuration of associated ideas. Spier then suggests the use of the *Association Test as a Method of Defining Religious Concepts.*

P. Radin's *Primitive Man as Philosopher* (New York) is important, not so much for what it means for the future of anthropology, but in demanding a reappraisal of those theories based on anthropological data held by philosopher, historian, sociologist, and psychologist. Radin challenges two common assumptions, namely, that primitive mentality differs in kind from civilized mentality, and that all members of a primitive group think exactly alike. Neither proposition is novel to the professional ethnologist, at least in America, but Radin's delineation of an intellectual class in such societies stresses a much neglected point. Radin maintains that the same distribution of temperaments is to be found in all societies, primitive or otherwise, hence the thinker, rationalizer, and skeptic make themselves felt in even those societies commonly viewed as containing only uniformly dull conformists.

The position of *The Father in Primitive Psychology* (New York) is generalized by B. Malinowski from his Trobriand Is. experience. "The ignorance of paternity is an original feature of primitive psychology." The Trobrianders, like the Australians, hold that intercourse is not necessary to procreation. Bearing is the act of a spirit. The father's function is solely the social one of a protector of his wife's offspring. All of the physiological facts are thus interpreted in consonance with a matrilinear society. Malinowski errs however in assuming the universality of a belief known so far to hold only for Australia and adjacent New Guinea, a continuous area but a restricted one.

Phrasing this in more general terms, Malinowski inquires how *Sex and Repression in Savage Society* (New York) differ from their forms in modern life. This leads primarily to (1) a criticism of the Freudian axiom that the Œdipus complex is the normal and universal fruit of the conflict of authority within the family, and (2) a consideration of the transitional animal-human stages in which culture began. Malinowski finds that a substitute complex is formed in the family of the matrilinear Trobrianders. There the maternal uncle exercises the authority of the father among ourselves. At the same time this authority is less directly voiced, and, being less in conflict with ties of love, produces no great conflict and no resultant ambivalence of feeling. The father's position lacks wholly the possibilities of conflict with the son. Malinowski's general conclusion is that the complex conforms to social regimentation.

The problem of the *Origin of the State* (New York), R. H. Lowie sees, not in seeking the specific origin of the modern organized political group, but in tracing those factors by which mechanisms of political order emerge among non-historic peoples. In short, he holds that a continuity exists from primitive to modern conditions. The primeval group, still represented by the rudest living tribes, "cohered through the unenforced acceptance of certain standards, violation of which precipitated general disapproval." Sovereignty is not a necessary criterion of statehood. The size of the state is, of course, not essential, but a consideration of the point suggests that sizable primitive states were effected by a tendency toward administrative unity following conquest. Unlike Oppenheimer, Lowie holds that conquest does not inevitably bring about caste stratification; back of that must lie a tendency to exploitation which itself is not of necessity derived from conquest. The old argument of Maine and Morgan that the territorial basis of state organization is a late development, following a condition wherein only the ties of blood held the group together, is refuted by Lowie. The local bond is present in every society; it varies in the extent to which it was strengthened so as sometimes to overshadow the blood tie. Tendencies toward autocracy or the formation of coördinated associations (such as the secret orders of West Africa) are factors which sunder the blood ties and stress the territorial. Lowie's view is that there must have been a multiplicity of origins to account for states whose nature is diverse.

LINGUISTICS. The special impetus to this branch of anthropology during the year was the establishment of a fund in the hands of the Linguistic Society of America which promised to stimulate research on all the Indian linguistic stocks hitherto untouched. A preliminary report on the distribution of dialects of the Salish stock of Northwestern America by F. Boas and H. Haeberlin (*Int. Jour. Amer. Linguistics*, 4, 117) shows the unexpected similarity of the eastern dialects of Montana and Idaho to those of the coast, with the dialects of interior Washington and British Columbia a different group lying between them. An interesting summary of what is now known of the Hittites by J. Garstang (*Nature*, June 4, 819), contains the assertion that the official language has grammatical forms resembling Indo-European. He suggests "a common even though remote parentage (Proto-Indo-European)." A group of *Washo Texts* was published by G. Dangberg (*Univ. Cal. Publ. Amer. Arch. Ethn.*, 22, no. 3).

PHYSICAL ANTHROPOLOGY. While for years palæontologists have agreed on the common ancestry of man and the anthropoid apes, dispute has raged on the question of the exact relationship and the age in which these forms took their departure. H. F. Osborn asserted (*Science*, May 20, 481) that the apes and man became divergent much more remotely than hitherto believed, placing the split at least in Lower Oligocene or Eocene times, since which the course of their development has been increasingly divergent. He postulates a Dawn man of that date, a ground-living, erect, large-brained and speaking type, wholly dissociated from the anthropoids. Further, he holds that the cleavage of the modern races of man is of remote date, extending well back into the Pleistocene. In reply (*Science*, June 24, 601), W. K. Gregory, for years his associate, shows that both anthropoids, living and fossil, and man are highly variable and plastic; that they have frequently approached each other in the course of their development; that even modern man has definite traces of a prior arboreal existence similar to that of the apes; and that the apes and man are clearly traceable to Miocene anthropoid forms. In short, that Eocene Dawn man is a fabrication not substantiated by any known direct evidence from palæontology and comparative anatomy.

Both writers hold the view that Asia is the place of man's origin. E. A. Hooton however believes that the origin was in a more westerly area, from Western Europe to Southern Africa, and that the generalized precursors were derived in Lower and Middle Miocene times (*Antiquity*, June). Mendes-Corrêa appends to an interesting consideration of the factors controlling the early disperson of man the suggestion that the areas around the Indian Ocean may be considered with Asia as his early home (*Scientia*, October).

A critical examination of accumulating evidence on *The Dentition of Dryopithecus and the Origin of Man* (*Anthro. Pap. Amer. Mus. Nat. Hist.*, 28, pt. 1) leads W. K. Gregory and M. Hellman to conclude that this extinct anthropoid of Miocene-Pliocene times is directly ancestral to man and the living anthropoid apes. They prefer "to trace the evolution of the human dentition through that of the primitive anthropoid Dryopithecus back to the primitive tarsioid Parapithecus, rather than to invent entirely hypothetical and unknown stages leading back to unknown stem forms of pre-primates in the Paleocene or Upper Cretaceous." The chimpanzee most closely resembles Dryopithecus among living forms, but this fossil genus was already differentiated, such that the species of India are more closely allied to the orang, those of Europe to the chimpanzee, gorilla, and man.

The reputed find of a second Pithecanthropus skull in Java in 1926 was welcomed as of first importance for an understanding of this primary link between the fossil anthropoids and man. It later appeared that the find was a cast, not even of a skull, but of part of an ancient elephant or Stegodon (*Amer. Jour. Phys. Anth.*, x, 162). Finds completing the skull of a child of Neanderthal race at Gibraltar were announced by D. Garrod (*Science*, Mar. 11, 254). Further discoveries of L. S. Leakey in East Africa disclose an early physical type differing markedly from the existing peoples of Kenya (*Nature*, May 14, 725, July 16, 85, 90).

Since the popular fallacy still prevails that the Jews form a special race, it is of interest to observe that J. Matiegka finds those of old Prague identical with other central Europeans (*Anthropologie*, Prague, 4, 163).

Some Contributions to the Anthropology of the Buriats by G. P. Kojeuroff (*J. Roy. Asiatic Soc.*, Shanghai, 58, 142) shows local differences among this central Siberian people. East of Lake Baikal, the more northerly Buriat are broader headed.

A very thorough study of *Twin Births and Twins from a Hereditary Point of View* (Stockholm) by G. Dahlberg suggests some features of racial significance. Over and above such differences as are due to a different average age of the mothers, data for Denmark and Finland show a greater frequency of twinning than in France. But against the assumption that a higher frequency is characteristic of the Nordic race is the fact that Norway has the same frequency as France. On the other hand Dahlberg found a positive correlation with light eye color in France, Italy and Germany, especially with dizygotic twins. Within the limits of the reliability in the collection of the data, this suggests a real racial factor in the consideration of this matter.

PREHISTORY. The puzzling relations of the stone ages discovered in recent years in Eastern Asia, by 1927 stood in a fair way of being resolved. It had long been supposed that China had no stone age; its cultural history beginning in proto-historic times (i.e. bronze age). A series of stone age cultures have now come to light in China, Mongolia, and Manchuria, whose relations to the historic Chinese and to the west have been uncertain. N. C. Nelson has presented an excellent survey based partly on his own unpublished researches (*Amer. Anthro.*, 29, 177) which suggests (1) that the Palæolithic remains of Mousterian and Aurignacian affinities are derived from those of the Yenisei in Western Siberia; (2) that a Neolithic culture of considerable antiquity, which flourished in the entire zone separating Siberia and China, is not derived from this Palæolithic stage; (3) the Late Neolithic (Eneolithic) culture which foreshadows the historic Chinese in part is a local development of this with only slight traces of Western influence. "While our recent investigations to date have furnished no evidence either for or against the biological origin of man in Asia, the evidence brought to light respecting the beginnings of culture point elsewhere."

Further light on the prehistoric cultures of the Altai mountains, Siberia, result from the expedition of the State Russian Museum under S. J. Rudenko in 1924–5. Late stone and bronze age implements were discovered. Stone age ornaments suggest a connection with Byzantine culture (*Nature*, Mar. 5, 367).

Egypt has long been recognized as a focal point of cultural development from the earliest proto-historic times. At the same time the almost complete absence of Neolithic remains, due largely to being covered by the silt which filled in the Nile valley, has made it difficult to understand the relations of pre-dynastic Egypt to the local palæolithic cultures. Contrary to the view of W. Flinders Petrie that the Fayum and Badarian cultures of Neolithic aspect are offshoots of a Solutrean people who about 15,000 B.C. moved from the Caucasus to the Nile region, E. W. Gardner and G. Caton-Thompson have shown (*J. Royal Anth. Inst.*, 56, 301) that both are definitely Neolithic. Fayum is the earlier, and both are free from dynastic Egyptian influences. Miss Caton-Thompson was to resume efforts to date the North Fayum culture during the winter of 1927–8 (*Nature*, Oct. 29, 629).

The discovery of flints of uncertain age from the desert between Mesopotamia and Palestine was announced by L. H. Dudley Buxton and H. Field (*Nature*, Apr. 30, 651). These are at least pre-Sumerian and possibly of late Palæolithic age.

The first Palæolithic remains from Scotland were reported from a cave in Sutherland, these being of upper Palæolithic type. Others, somewhat doubtful, from Sligo, Ireland, may represent the first Palæolithic finds there as well. But the case was rejected in toto by Macalister, Charlesworth, Præger, Stelfox, and Warren (*Nature,* Mar. 26, 475; Aug. 20, 260; Nov. 5, 652).

Transitional development of culture from Mousterian to Aurignacian was demonstrated in a series of strata in a rock shelter at Rochettes, Dordogne, by Courtier and Emetaz (*Bull. Soc. Anth. Paris,* 7, fasc. 4–6). Another cavern with evidence bearing on transitions was announced by Saint Périer (*L'Anthropologie,* 37, 3–4). Three strata contain neolithic, transitional Magdalenian-Azilian, and early Magdalenian remains. These finds suggest that the old idea of abrupt breaks between these cultures will be replaced by the view that they developed one from another largely on the spot.

A new Tardenoisian site (transitional Palæo-Neolithic) was discovered at Cape Blanc-Nez, France. A Magdalenian level had been found beneath one of early Neolithic age in a grotto at Serrières-sur-Ain. A skull uncovered in this level has australoid or negroid characters which suggest descent from the Grimaldi race (*Nature,* July 30, 163, Aug. 13, 239).

The reputed discovery at Glozel, near Vichy, France, of neolithic objects with inscriptions on clay tablets which suggest a western origin for writing (see YEAR BOOK for 1926, p. 43) was found fictitious by Crawford, Breuil and de Pradenne. An international commission appointed by the Institut d'Anthropologie at its Amsterdam meeting proceeded to the spot for further investigations. (*Nature,* July 2, 20; Sept. 3, 342; Oct. 15, 559; Nov. 12, 703). The controversy was active at the end of the year.

Stratified sites in South Africa are almost unheard of. Especial importance therefore attached to those discovered by V. Lebzelter (*Anthropos,* Vienna, 21, 952; 22, 244, 571). The evidence suggests a series of stone cultures ranging back from Bushman types to others resembling European Palæolithic. Climatic oscillation is evidenced, with the cultures flourishing in the intervals of steppe conditions. These forms have been found over a wide area from Southern Transvaal to Southeastern Good Hope.

Equally important is the evidence from Nakuru, Kenya, Eastern Africa, of deposits antedating two pluvial periods. Not only does the stone culture resemble the Azilian of Europe, but the human remains are of a type quite distinct from modern negroes (*Nature,* 119, 61; 120, 338).

From the standpoint of culture history, interest attaches to the discovery that the Sumerians were in possession of an advanced type of wheat at an early date. The grains, found near Kish, Mesopotamia, are identified as *Triticum turgidum* and dating from 3500 B.C. On the other hand claims are made for a knowledge of barley alone in early Egypt, wheat dating only from dynastic times, but this does not seem acceptable (*Nature,* 119, 81; 157, 280). A résumé of *The Beginnings and Early Spread of Agriculture* by H. J. E. Peake (*Nature,* June 18, 894) makes it appear that wheat and perhaps barley were first cultivated in Syria, probably on the slopes of Mount Hermon. Wheat arrived in Egypt in middle pre-dynastic times, where barley may have been grown earlier.

OLD WORLD ETHNOGRAPHY. The descriptive ethnography of the Old World was only scantily represented in publications of the year. This was probably the result of the infrequent expeditions of European institutions of the war years and those following. To his earlier study R. S. Rattray added an account of *Religion and Art in Ashanti* (London). A host of supernatural beings are conceived whose interest must be maintained by sacrifice, in order that the fertility of the land and of mankind may persist. The king is only secondarily divine; the divinity residing rather in his throne. An unusual feature is a treasury of gold, guarded by an armed group, which belongs to the dead kings but from which the reigning monarch may borrow.

The anomaly of Madagascar, with its Malay language and customs quite across the Indian Ocean from Malaysia is explained by H. M. Dubois by an elaborate scheme of migrations (*Anthropos,* Vienna, 22, 80). The earliest immigrants in remote antiquity were negrillos, later dispossessed by negroes, both coming from some Asiatic centre. Still later they were forced into the interior in turn by a mixed negroid group containing Malay elements. Further influxes of Arabs, Semites, and Indians followed. Only in the last four centuries did the resident Malay make their influence strongly felt. Coincident with this suggested history R. Linton lets drop the tantalizing hint that the Malay were the first to occupy the island (*Amer. Anthropologist,* 29, no. 3).

In view of the rôle which their cultures play as an archaic stratum in the historical scheme of the Schmidt-Koppers *Kulturkreis* school, the interest of the *Anthropos* group in the Bushmen and Pygmy cultures is intelligible. In addition to the archæological investigations of Bushman territory by V. Lebeltzer mentioned above, they have also fostered P. P. Schumacher's expedition to the Central African Batwa pygmies (*Anthropos,* 22, 530). The importance of this account of social life, brief though it is, lies in that practically nothing is known of the non-material aspects of their culture. A newly discovered pygmy group in New Guinea is briefly reported on by F. Kirschbaum (*Anthropos,* 22, 202). The negritos of Malacca are the subject of a sketch by P. Schebesta (*Bei den Urwaldzwergen von Malaya,* Leipzig).

A. Maass issued a study of star lore in the Malay archipelago (*Tijdsch. v. Indische Taal-Land-en-Volkenkunde,* Batavia).

The now general use of distribution studies as the first step toward historical analysis is exemplified by K. G. Lindblom in *Die Schleuder in Afrika* (*Riksmuseets Etnog. Avdeln., smärre medd.,* 2, Stockholm). Slings were known in the classic world and to the Hebrews, Assyrians, Persians, and Egyptians. They are found from Arabia southward to Madagascar and again in a distinct area in Western Africa. The earliest known slings are Egyptian, whence they spread to adjacent Asia and Southern Europe in historic times. Similarly, late Hamitic influences carried them into Western and Eastern Africa.

The distribution of *Musical Instruments in Celebes* has been worked out by W. Kaudern

(*Ethnog. Studies in Celebes,* Goteborg III). Only a few are native; the more complex types are present because of Hindu, Chinese, or Mohammedan influences.

The culture of Niue is viewed as of archaic Polynesian type by E. M. Loeb (*Bull. Bishop Mus.,* 32). This inference is derived from the lack of complex political organization, priestly class, occupational differentiation, and genealogies; all features present in developed Polynesian communities.

Concerned with the origins of Polynesian culture, E. S. C. Handy commenced a study "of the remnant of Polynesian cultures of China, Siam, and India." Of the Tanka and Hakka, living near Canton, he says: "They are certainly wholly Chinese now in culture. That is quite as it should be, for the distinctive elements belonging to the Tangaloa Polynesia are distinctly Chinese. The problem will prune deep into Chinese history and culture." (*Rep. Director Bishop Mus. for 1926,* 6).

NEW WORLD ETHNOGRAPHY. As in the Old World, ethnographic accounts from this province were less numerous than those dealing with archæological remains. It is customary to treat the latter coincidentally with observations on living peoples, since nothing has yet been found in America which can lay claim to great antiquity.

The most recent suggestions of man in America in Pleistocene times, which is to be expected on inferential grounds, were the claims of Figgins and Cook that artifacts have been found with extinct bison at Raton, N. M., and Colorado, Texas. A less certain case was reported from Frederick, Oklahoma.

To the scanty data on stratification may also be added the suggestion of G. Langford that in *The Fisher Mound Group* of Illinois, brachycephals were preceded by a long-headed group (*Amer. Anth.,* 29, 105, no. 3).

A notable increase in the number of archæologists at work in the Pueblo area of Southwestern United States was observable at the field conference held at Pecos, N. M., in August under the leadership of A. V. Kidder. Essential agreement was reached on the course of development from a nomadic, long-headed, non-agricultural population to the existing broad-headed, agricultural Pueblos. While the basic element, agriculture, was diffused from the south, as well as later elements, such as cotton growing, loom weaving, and probably pottery, it was held that the development was essentially autochthonous. Eight stages, fixed by stratigraphic evidence, were defined: Basket Maker I–III, Proto-Pueblo, Pueblo I–IV. The need for examination of the peripheral areas was stressed. (For details see *Science,* Nov. 18, 489.)

The first of these cultures, Basket Maker, as the name indicates, is devoid of the potter's art. It makes its first appearance at the Post-Basket Maker (Basket Maker III) level. It has long been a moot point whether this is an indigenous development or derived from the ancient civilizations of Mexico as the majority believe. E. H. Morris inclines to the former view, that *The Beginnings of Pottery Making in the San Juan Area* (*Anth. Papers Amer. Mus. Nat. Hist.,* 28, pt. 2) are local, since the earliest wares were moulded in baskets and unfired. The following stage is true built-up pottery, fired and with painted decoration in imitation of contemporary basket designs.

A quota of special inquiries have been made in the area. *Archæological Observations North of the Rio Colorado* by N. M. Judd reveals a marginal and perhaps early Pueblo culture (*Bull. Bur. Amer. Ethn.,* 82). *Archæological Explorations on the Middle Chinlee* in Arizona by N. Morss (*Mem. Amer. Anth. Assn.,* 34) shows it to have been occupied through the whole period of known history of the Southwest prior to the Spanish advent. *A Stratigraphic Study in the Gila-Salt Region, Arizona* by E. F. Schmidt (*Proc. Nat. Acad. Sci.,* 13, 291) marks the first intensive study in that area, although work was begun there more than thirty years ago.

The Social and Ceremonial Organization of Cochiti in New Mexico is essentially that of other Pueblos (*Mem. Amer. Anth. Assn.,* 33). E. S. Goldfrank suggests that formerly the matrilineal clans may have had more important functions now dwindling in the presence of patrilineal ceremonial moieties. As E. C. Parsons has pointed out, the former are typical of the western Pueblos, the latter of the eastern; Cochiti being geographically intermediate. There is the familiar Pueblo separation of secular and ceremonial officials; in this case the ceremonial organization is the more rigid. A peculiar linkage joins each dance society with one of the curing fraternities.

A survey of *The Northern and Southern Affiliations of Antillean Culture* (*Mem. Amer. Anth. Assn.,* 35) by C. D. Gower shows that most, if not all, of the island culture was derived from South America. The local culture reached a higher plane of elaboration than the parent group, however. Strangely enough, there is little indication of influence from Central America. Resemblances with Southern United States suggest development from a common ancient culture with subsequent slight additions over a long period of time.

A step toward closing the gap in descriptive data which exists between California and British Columbia was the publication of E. Gunther's *Klallam Ethnography* (*Univ. Wash. Publ. Anth.,* 1, no. 5). This sketch of a coastal Washington tribe was especially full on social and ceremonial life. The characteristic caste system of the coast to the north is in effect here and a single secret society in imitation of the many among northern tribes appears. In the same area R. L. Olson's study of the *Adze, Canoe, and House Types of the Northwest Coast* (same series, 2, 1) shows that while these were not invented within the area, certain specializations have appeared which spread from local points of origin. A further study from this intermediate culture zone is an analysis of a historic case of diffusion (*The Ghost Dance of 1870 Among the Klamath of Oregon,* same series, 2, no. 2). Following Kroeber, L. Spier traces it from an origin in Nevada, with subsequent diffusion back and forth across California. It seems that the cult has been diffused as a whole, ritual and ideology alike.

Further *Contributions to Fox Ethnology,* comprising ceremonial data, have been issued by T. Michelson (*Bull. Bur. Amer. Ethnol.,* 85).

Eastern Greenland, now unoccupied, once contained an Eskimo population, whose origin and fate are mysterious. J. M. Wordie reported (*Na-*

ture, Apr. 2, 506) that the population was scanty and probably did not arrive, at least to any degree, via a northern route as prevailing inference holds.

Pottery Types and their Sequence in El Salvador, as defined by S. K. Lothrop (*Indian Notes and Monographs,* I, no. 4), is based on the only stratified site between Mexico and Ecuador. Volcanic activity in Central Salvador subsequent to an early occupation of the country deposited a deep layer of ash in the upper layers of which are a complex of types. The remains of the lower level are identifiable with the Archaic horizon found in the earliest deposits in the Valley of Mexico. The novelty of the upper culture is the inclusion of Archaic forms (of somewhat different type) with recent types, among them those of the Old Mayan Empire. This indicates a persistence of both types, which in the latter case are posterior to the Old Empire towns, such as Copan.

The cultures of *Coast and Highland in Prehistoric Peru* are unequally represented in present-day conceptions of their pre-Columbian development, according to A. L. Kroeber (*Amer. Anth.,* 29, 625). The majority of opinions, following Uhle, are based almost wholly on evidence of the coastal cultures. Tello is of the opinion, however, that highland culture is basic, the coastal forms representing largely local elaborations of it. The difficulty in resolving these views is that the highlands are but little known.

Further unravelling of the complex culture history of Peru by A. L. Kroeber reveals the place of the *Ancient Pottery from Trujillo* (*Mem. Field Mus. Nat. Hist.,* 2, 1) on the northern coast. In the general eras of Peru (pre-Tiahuanaco, Tiahuanaconoid, pre-Inca, and Inca) the Trujillo wares are chiefly pre-Tiahuanaco, and later pre-Inca and Inca. In the earlier period, relations were chiefly to the northern interior; in the later, elements from a wide area were incorporated in the local style.

Still further stylistic analysis of ancient Peruvian pottery by A. H. Gayton and A. L. Kroeber (*Univ. Calif. Publ. Amer. Arch. Ethn.,* 21, 8, 24, 1) show that typical Nazca ware is in two styles. The earlier merges into a second, followed by wares distinctive of the neighboring valley of Ica. The change in design shows in part a gradual shift of interest from representation to execution. At Nieveria a late Nazca style is followed by local Proto-Lima types involving several stylistic strains. The method of analysis is noteworthy. The several substyles were first separated on the basis of form, then independently by design and color. It was found that the coincidence of form group and design-color group was greatest on wares attributed to the assumed substyle.

The year 1927 saw the appearance of two general works on South and Middle America, which fortunately are complementary. R. Karten's *The Civilizations of South America* (New York) is almost wholly concerned with religion and social organization, while *Handbuch der Präkolumbischen Kulturen in Latein Amerika* (Hamburg) of T. W. Danzel is a brief but rounded series of sketches based on early documents and archæology.

NEWS, EXPEDITIONS, PERSONALIA. Special studies in South America were continued by the Göteborgs Museum (Sweden). E. Nordenskiöld and S. Linné made archæological studies on the Pearl Islands and the Bay of Uraba, Panama, and on the coast of Colombia, and visited the Chocó, Cunas, and Bogotá tribes. C. Nimuendajú continued work on the Rio Negro, Brazil. The museum also acquired an important collection from Guiana made by W. Roth. The Naturiska Riksmuseet, Stockholm, had sent H. Granvik to the Turkana and Bagishu, Eastern Africa, and C. C. Luck to excavate at Lumbwa, Kenya, in the same territory. J. G. Anderson was sent to Chili and Shansi, China. New collections at this museum include material from the Kenya, Dutch Borneo, from the Touaregs and others of Northern Africa and from Kavirondo and Nandi, Kenya. A Danish expedition, lead by C. Olufsen, explored the upper Niger, Volta, and Southern Sahara in Western Africa.

The Royal Anthropological Institute (London) formed a committee to organize research, which issued an appeal for funds. They had dispatched Miss G. Caton-Thompson to the Fayum to date her earlier finds. Cambridge had G. Bateson in New Guinea. T. C. Hodson succeeded A. C. Haddon as reader in ethnology at this university, where stress was to be laid on courses for colonial administrators. The first permanent full-time chair in the British Isles was given B. Malinowski at the University of London. E. Pritchard visited tribes of the Southern Sudan for this institution, principally the Niam-Niam.

The Rijks Ethnographische Museum, Leyden, was moving into new quarters. Its new collections contain material from Java, Surigao, the Batak-lands, Tenimber, Greenland, and some Oriental objects. C. C. Uhlenbeck continued his work in general and American linguistics. Of special interest will be his opinion of Wiyot (California) as an Algonkian language. The Koninklijk Nederlandsch Aardrijkskundig Genootschap, in new quarters in Amsterdam, had an expedition to the Wilhelmina mountains, Surinam. A new museum was planned for the ethnological section of the Naturhistorisches Museum in Vienna, the Asiatic collection being ready at the end of the year.

The Museum für Völkerkunde in Leipzig was in a new building, with H. Damm added to its staff for Oceania-Indonesia. The reopening was planned for the autumn of 1929. Collections from the Veddas, Eskimos, from Dalmatia, the Congo and South Kamerun, were added. The Forschungsinstitut für Völkerkunde in the same city continued its expedition among the primitive people of India. The Rautenstrauch-Joest Museum of Cologne, which was directed by J. Lips, reorganized its east Asiatic, South American, and African collections.

The Museo Nazionale di Antropologia e Etnologia, newly housed in Florence, added collections from Italian Somaliland made by Stefanina-Puccioni and those of L. Cipriani from South Africa, in particular from Zululand. The Società Italiana di Antropologia e Etnologia had joined forces with this museum. The newly founded Museo Missionario-Etnologico at the Lateran, Rome, opened December 27 under the directorship of W. Schmidt. This was a continuation of the Vatican Missionary Exposition of 1925. The intention was to develop a school for missionaries and collections for research use.

Activities of American institutions were numerous. For the National Museum of Canada (Ottawa), W. J. Wintemberg excavated Algonkian sites north of the St. Lawrence, C. M. Barbeau continued his study of the social organization of the Nass (British Columbia), and in the same region H. I. Smith excavated on the Skeena River. D. Jenness visited Newfoundland for Beothuk remains, and J. C. B. Grant made an anthropometric survey of Cree and Ojibway. The Provincial Museum (Victoria, B. C.) acquired the Tolmie collection of Northwest Coast objects.

The American Museum of Natural History (New York) had H. L. Shapiro excavating post-Basket Maker sites in Northwestern New Mexico. N. C. Nelson returned with remains of Neolithic, Azilian, and Mousterian cultures from Mongolia and the Yantze gorges. G. C. Vaillant joined the staff to take charge of Middle American research. The Bureau of American Ethnology (Washington) had J. W. Fewkes examining mounds in South Carolina, J. R. Swanton concluding his Creek studies, F. LaFlesche compiling an Omaha dictionary, F. Densmore obtaining Winnebago songs, and F. H. H. Roberts investigating caves near El Paso, Texas, and excavating in Chaco canyon, N. M., and in Southeastern Utah. J. N. B. Hewitt continued Iroquoian studies, T. Michelson those among the Fox and Arapaho, and J. P. Harrington was with the Mission Indians, California. For the United States National Museum (Washington) A. Hrdlička made a reconnoissance of village sites in Alaska, and H. B. Collins with T. D. Stewart studied the little modified Eskimo of Nunivak Island, Alaska. Archæological work by W. Hough in Tennessee and in the Southwest, and by H. W. Krieger on the Columbia and Snake Rivers was carried on. M. W. Stirling returned with collections from South Central New Guinea. A. V. Kidder joined the staff of the Carnegie Institution of Washington, July 1, to assume charge of activities in this field. S. G. Morley and E. H. Morris excavated at Chichen Itzá, Yucatan, and O. G. Ricketson at Uaxactun, Guatemala.

The Field Museum of Natural History (Chicago) maintained five field expeditions. W. D. Strong left for Labrador to investigate Naskapi and Eskimo, while J. Borden returned with an Alaskan Eskimo collection. In coöperation with Oxford University work was resumed at Kish, Mesopotamia, on the excavation of the Sumerian temple of the Earth Goddess of Harsagkalama. H. Field gathered material on prehistoric man in Europe and Arabia. R. Linton's expedition to Madagascar returned at the end of the year. New additions to the museum's staff were W. M. McGovern for South American ethnology, J. E. Thompson for Mexican and South American archæology, and T. G. Allen for Egyptian archæology. Structural changes made eleven new halls available for anthropology. The new museum of the University of Michigan was nearing completion. For this institution, work was continued in Michigan, and C. E. Guthe and W. V. Kinietz visited Southern Kentucky. The museum of the University of Pennsylvania acquired an extensive series of Alaskan objects collected by L. Shotridge. For the Southwest Society, E. C. Parsons continued studies of the Pueblos and visited the Kiowa.

American universities continued active support of anthropological research. Of the Columbia University group, F. Boas studied the Chehalis language, M. Jacobs the Klickitat, G. A. Reichard the Coeur d'Alene, all languages of Washington and Idaho. R. L. Bunzel continued work at Zuñi, N. M., and R. F. Benedict among the Pimas (Arizona). G. Herzog studied the music of the Pueblos and their neighbors. M. J. Herskovits continued his investigations of negroes, in conjunction with which O. Klineberg made psychological studies. For the Institute of Psychology, Yale University, P. Radin prepared his Winnebago notes, H. Roberts completed a study showing the effects of emotional status on Indian music, B. Blackwood continued measurements of Southwestern Indians and mental tests of school Indians. E. M. Pilpel developed a psychological analysis of mythologies and S. de Aberle surveyed family life of primitives. The University of California continued A. H. Gayton's researches among the Yokuts and sent R. L. Olson to Santa Cruz Island, Cal., for excavations.

The Peabody Museum (q.v.), Harvard Univ., had A. M. Tozzer and H. J. Spinden continue research on Middle America and S. J. Guernsey on Northeastern Arizona. C. B. Cosgrove completed excavations in New Mexico. C. Peabody carried on archæological investigations in France and W. B. Cline in the Nile Valley. C. S. Coon studied the Moroccan Berbers and G. D. Williams the Maya of Yucatan. Valuable collections were secured from Southern Dutch New Guinea and others from the Andamanese (India), Teguala of Panama, and Amueshu of Peru. The University of Chicago's archæological survey of Illinois was completed for the northern counties, in which excavations revealed three native cultures. E. Sapir studied Athapaskan tongues in California and the Grebo language of Liberia.

The University of Oklahoma inaugurated work in this field with the appointment of L. Spier. M. Herskovits joined the staff of Northwestern University and T. T. Waterman that of the University of Arizona.

The Museu Nacional of Brazil (Rio de Janeiro), under the direction of Roquette-Pinto since October 11, was carrying on investigations of the school children of Rio, of Brazilian monkeys, the caves of Lagoa Santa, and the Sambaquis of Southern Brazil. J. C. Tello of the Museo de Arqueologia Peruana (Lima) excavated material in coastal Peru (Department of Ica) for the government exhibit in Seville, Spain.

The formation of a committee of the Australian National Research Council in 1927, headed by A. R. Radcliffe-Brown, gave great impetus to research in that continent. Nineteen grants were made. T. D. Campbell and J. B. Cleland visited Macumba Station and Alice Springs in January for anthropological and physiological data. Early in the year, Professors Chapman and Priestly made studies of the basal metabolism of the natives at Wallaga Lake, New South Wales. Dr. H. K. Lee visited Palm Island for data on physical anthropology. V. McConnel studied the tribes of Archer River, Gulf of Carpentaria, W. L. Warner those of the Northern Territories, and A. P. Elkin the tribes of the Kimberly district, Western Australia. H. Hogbin visited the outlaying islands of the Soloman group, while R. F. Fortune made ethnological and psychological observations in New Guinea.

The Bishop Museum (Honolulu) staff was augmented by the appointment of P. H. Buck. H. Hamilton left that of the Dominion Museum (Wellington, N. Z.).

The triennial congress of the International Institute of Anthropology met in Amsterdam, Sept. 19–24, at which the Prix Hollandais was awarded D. Garrod for her work in prehistory at Gibraltar. The International Institute of African Language and Culture met at Paris, Dec. 13, 1926. The government of the Gold Coast promised £500 a year for two years. The government of British Honduras has asked the British Museum to supervise archæological explorations of that country. The Kaiser Wilhelm Institute for Anthropology was inaugurated in Berlin-Dahlem, September 15, with E. Fischer as director.

The Loubat prize for Scandinavia was awarded W. Thalbitzer, March 20, for his studies in Americana. An honorary doctorate was conferred by St. Andrews University, on K. Rasmussen, the Greenland explorer. The Royal Anthropological Institute (London) awarded the Huxley Memorial to A. Hrdlička on November 8, and the Rivers Memorial medal for field work to B. Spencer. The University of Leeds conferred the doctorate of laws on A. Keith.

NECROLOGY. Several founders of modern anthropology died in the year. Leon P. Manouvrier (q.v.) was professor of the Paris École d'Anthropologie and a well-known physical anthropologist. Maurice Delafosse (b. 1870, d. November 13) was a distinguished scholar of West African languages and culture, Governor of Oubangi-Chari in 1918, professor at the École Coloniale and École des Langages Orientales Vivantes. Gustav Fritsch, aged 89, was professor of anatomy at the University of Berlin, and a contributor to physical anthropology. England lost Edwin S. Hartland (b. 1848, d. June 19) whose interests lay in folklore, society, and religion; Sir H. H. Johnston (q.v.), one of the pioneers of East African ethnography; and Sir William Ridgeway of the University of Cambridge. George B. Gordon (q.v.), director of the University of Pennsylvania Museum, also died.

ANTIGUA. See LEEWARD ISLANDS.

ANTIOCH COLLEGE. A non-sectarian, coeducational college at Yellow Springs, Ohio; founded by Horace Mann in 1853. The number of students enrolled for the autumn term of 1927 was 720, of whom 186 were women and 534 men. The faculty had 62 members. The productive funds of the institution amounted to $142,822.73, and the income for the year was $303,409.73. The library contained approximately 24,000 volumes. Antioch College was being conducted on the belief that academic training alone does not fit a young person for life, and was so organized that the students divided their time between school and practical work as part of the economic community. President, Arthur E. Morgan, D.Sc.

ANTI-SALOON LEAGUE OF AMERICA. A federation of churches and temperance organizations in the United States, united against the beverage liquor traffic. It was established in 1895 by a coalition of the Anti-Saloon Leagues of four States and the District of Columbia. At the end of 1927 it embraced 29 State or Territorial Leagues and had affiliations with 40 other national temperance organizations, as well as with the World League Against Alcoholism (q.v.). During the year the work of the League was carried on by over 1500 representatives. This work included a widespread educational campaign on the evils of the use of alcohol and the duty of observance of the law, carried on through the press, pamphlets, the pulpit, and the lecture platform. The legislative work of the year included supporting the Reorganization bill, providing a bureau of prohibition and a bureau of customs in the Treasury Department; the bill was passed by the Senate after the cloture rule was invoked in the closing days of the Sixty-ninth Congress.

The League cited as outstanding events of the year the decisions of the Supreme Court upholding and construing the anti-smuggling liquor treaty with Great Britain and the action of the Court in refusing to review an injunction against a cabaret keeper who knowingly supplied facilities for illegal drinking. The League issued statistics based on official reports, demonstrating that the consumption of intoxicants had dropped to a small fraction of its former total. *The American Issue*, published at Westerville, Ohio, is the official organ of the League, both a national edition and many State editions being published. Its monthly circulation was about one million copies. The National Headquarters are at Washington, D. C. The officers for the year were: President, Bishop Thomas Nicholson, Detroit, Mich.; secretary, S. E. Nicholson, 370 Seventh Avenue, New York, N. Y.; treasurer, Foster Copeland, Columbus, Ohio; general superintendent, F. Scott McBride, Washington, D. C.; general manager of publishing interests and of the Department of Education, Ernest H. Cherrington, Washington, D. C. See PROHIBITION.

ANTI-SEMITISM. See AUSTRIA under *History;* JEWS.

ANTI-TOXIN. See DIPHTHERIA.

ANTRANIK, GENERAL. See CUZANIAN, ANTRANIK.

APES, ANTHROPOID. See ANTHROPOLOGY, under *Physical Anthropology*.

APICULTURE. See ENTOMOLOGY, ECONOMIC.

APPEN'DICI'TIS. In a paper on this subject by Bower and Clark of the Samaritan Hospital, Philadelphia, with the subtitle "Some Fallacies of Present Day Teaching" (*Journal of the American Medical Association*, Sept. 10, 1927) the authors asserted that the operating surgeon had the least to do of any concerned with the factors which govern the reduction of mortality; meaning of course that the patient, his friends and the family physician, who bear the least of the responsibility, have the most to do with such factors. It was well understood by all intelligent and informed persons that the earlier the diagnosis is made and operation performed, the better the outlook for recovery; and this axiom was verified daily by the statistics of hospitals. The authors adduced a comparatively new factor in prognosis, the danger in giving laxatives—new in the sense that heretofore this had not been reduced to a statistical basis. In the Samaritan Hospital during 1926 over 92 per cent of all patients who died from spreading peritonitis following rupture of the appendix had taken laxatives before admission. As a result 600 letters were sent out to physicians who referred their patients to the hospital, each containing numerous stickers and cards, with a warning to give no medicines by the mouth to patients with abdominal pain, but to call in the family physician at once and in the meantime apply an ice bag or hot water bottle and empty the bowels with an enema. The physicians receiving these warnings were requested to affix the stickers to their monthly statements and distribute the cards to other patients.

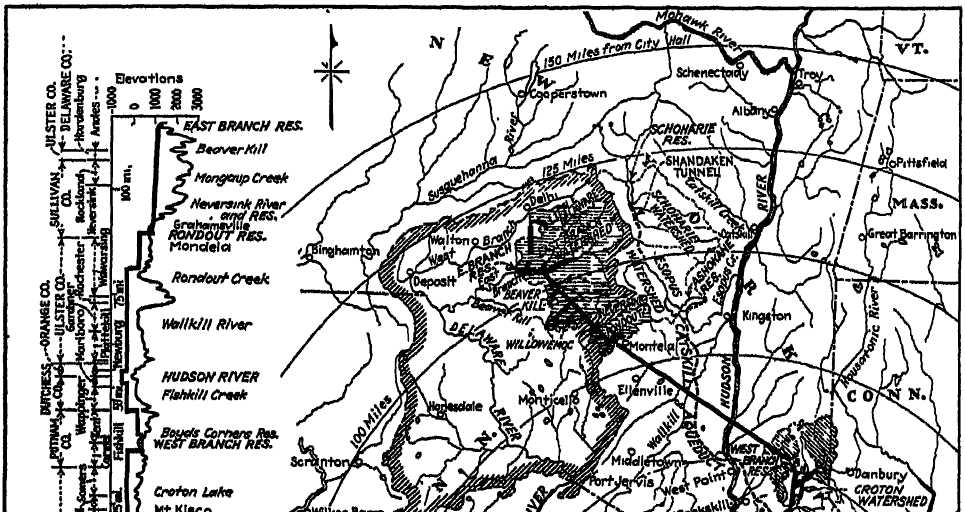
Statistics continued to show that there should be almost no mortality following appendicitis operation unless in the event of spreading peritonitis or abscess. Dr. Riedel of the Deaconesses' Hospital, Stettin (*Münchener medizinische Wochenschrift*, Aug. 26, 1927) quoted a mortality of but 1.77 per cent in a thousand cases operated on in 1925–26. Of this number there were 131 with the complication of peritonitis or abscess, and in this series the percentage of deaths was about 12, which accounted for the great majority of the total deaths. The statistics of the American authors quoted above appeared to fix some of the responsibility for spreading peritonitis on the custom of taking laxatives—notably castor oil—for abdominal pain.

APPLES. See HORTICULTURE.

AQUEDUCTS. Throughout the year progress continued on the developing and extension of water supplies for large cities and metropolitan areas. The notable feature of many of these projects was the scale on which they were planned, as it was realized that future needs must be taken into consideration. In many projects there were long lengths of conduits involving not only tunnels, but steel or concrete pipe. Some of the more notable aqueducts are discussed below.

NEW YORK CITY WATER SUPPLY. The New York City Board of Water Supply during the year recommended to the Board of Estimate of the city, a project for an additional water supply of 700,000,000 gallons per day of which 600,000,000 would be from flood flows of tributaries of the Delaware River in New York State and 100,000,000 gallons per day from Rondout Creek, a tributary of the Hudson River. The Board proposed construction in three stages, estimated cost of the first two of which, affording a supply of from 510,000,000 to 540,000,000 gallons per day, being $272,587,000, or $75,347,000 less than the estimated cost of providing 434,000,000 gallons per day from streams east of the Hudson River, as recommended by the Board in October, 1926, and referred to in the 1926 YEAR BOOK.

The new plan provided for turning the yield of the higher portions of the Croton drainage area into the existing Catskill terminal reservoir. It involved the construction of five storage reservoirs in the upper tributaries of the Delaware River and a sixth reservoir on Rondout Creek. There would be required a tunnel or aqueduct extending from the East Branch Reservoir to Rondout; a tunnel from Neversink to Rondout; and a tunnel from Rondout Reservoir to West Branch Reservoir; as well as one from the West Branch Reservoir to Kensico Reservoir. Furthermore, a new aqueduct from Kensico Reservoir to Hillview Reservoir would also be required. The total cost of the project involving the various dams, reservoirs, and aqueducts was estimated at $272,587,000. The accompanying plan and profile indicate the main features of the project.



From Engineering News-Record

PROPOSED EXTENSION OF NEW YORK'S WATER SUPPLY

The New York City Board of Estimate not only had this project under consideration, but it approved plans for the new pressure tunnel 17 feet in diameter and 20 miles in length at the upper end of the system to supplement the tunnel already in use to deliver water from the Catskill aqueduct system to the various parts of New York City. Studies for this tunnel were under way, but no contracts had been let up to the end of the year. The Board of Estimate also had under consideration a plan to develop a supply of 150,000,000 gallons per day from wells on Long Island for emergency use.

SAN FRANCISCO. During 1927 active progress was made on the Hetch Hetchy Project to bring to the city of San Francisco water from the head waters of the Tuolumne River, a distance of 168 miles. As noted in previous YEAR BOOKS the storage reservoir and 18 miles of the tunnel in the mountain division had been completed; while power had been generated in the Moccasin Creek plant yielding a substantial revenue. The element of the project under construction in 1927 was a 13 x 14 foot tunnel in the foothills division, 16 miles in length, of which on December 15, all but two and one-half miles had been driven. This tunnel for about 37 per cent of its length was to be lined with concrete. In addition to the foothills tunnel there remained to be built 45 miles of steel pipe across the San Joaquin Valley and 30½ miles of tunnel to the Coast Range Mountains. It was estimated four years more would be needed for this work.

MOKELUMNE WATER SUPPLY. This project for supplying the cities of the east side of San Francisco Bay with water derived from the storage reservoir on the Mokelumne River through a 95-mile aqueduct made continual progress during the year. In fact, early in December it was stated that 82 per cent of the aqueduct was already in place and the completion would be looked for some time in 1928. As stated in the 1926 YEAR BOOK, this aqueduct consists of steel pipe 65 inches in diameter, operating under a head of about 500 feet in the lower level. In July work was begun on the outlet tunnel from Pardee Reservoir 2.2 miles in length and by December 15 the headings had advanced some 1900 feet so that the tunnel could be completed by the middle of 1929. Work was also in progress on the Claremont section, 3.4 miles in length which was to be completed in 1929. In addition to the water supply project a bond issue of $26,000,000 for the purchase or construction of a distributing system was authorized by the voters of the district so that the water could be delivered direct to the ultimate consumers.

COLORADO RIVER AQUEDUCT. The city of Los Angeles, Cal., for some years had realized that it would be necessary to make plans for increasing its water supply and was looking to the Colorado River, a distance of 260 miles, as a source of an adequate supply. Preliminary field studies had been under way for four years and during 1927 these investigations were completed covering 18,000 square miles of desert country through which the proposed aqueduct would pass. At the end of the year engineers were working on cost estimates so that a complete report with detailed recommendations could be submitted by the chief engineer of the city's department of water and power to the city board of water and power commissioners.

LOS ANGELES AQUEDUCT. During the year the Los Angeles Aqueduct was dynamited several times in the warfare that was in progress between the residents of Owens Valley and the city of Los Angeles, on account of damages alleged to have been suffered by diversion of water. The aqueduct was first dynamited in two places on May 27 and 28, and the repairs were speedily completed, large storage reservoirs at the Los Angeles end of the aqueduct preventing danger of any interruption in the city's water supply due to a shutdown. One of these blasts was in No-Name Canyon siphon, 170 miles north of Los Angeles at the east end of the Owens Valley.

This blast destroyed a length of pipe totaling 476 feet, the damage being increased by the fact that there was a flow of water which washed out the line, while additional damage was done by collapse, due to vacuum established. On May 28, a blast tore away two 30-foot sections of flanged welded steel in the penstock at Big Pine, supplying the big power house in Owens Valley, 16 miles west of Bishop, but these sections were replaced after an interruption of about four days. Again on June 5, a blast was discharged under the open canal section in Owens Valley a few miles south of Lone Pine near the Cottonwood power plant. Slight damage was done and repairs were completed in a few days. Again on July 15, and July 16, two other explosions of dynamite in open canal portions of the Los Angeles aqueduct occurred, but did little damage, the most serious effect being to the side walls in the open concrete line section near Lone Pine. This damage was repaired within two days.

The claimants for reparations, who it was alleged were responsible for these acts, had refused to accept plans to file their claims in the courts and follow legal methods for collecting at law any damages proved to be suffered and which could be paid by Los Angeles. A reparations law was adopted by the California State Legislature in 1925, which provided that reparations claims must be filed in court by July 22. At that date no such action had been taken by the reparationists. The repairs which were effected by the Los Angeles Bureau of Water Works and Supplies indicated that serious permanent damage could not be done to the system by sporadic injuries and that repairs could be handled speedily and effectively under a wide variety of conditions.

BOSTON METROPOLITAN WATER SUPPLY. Work was actively in progress during the year for the Boston Metropolitan Water District on its project to develop additional water supply from the Swift and Ware Rivers. This project, which was estimated to involve some $65,000,000, included a 25-mile tunnel extending westerly from the Wachusett Reservoir on the Nashua River. During the year the easterly half of this tunnel was begun and six construction shafts 310 to 650 feet in depth were sunk to tunnel grade and headings started. Bids were received for constructing the easterly half of the tunnel towards the end of the year and this work it was anticipated would soon be under way. To meet the growing demands for water for the Metropolitan District it was found necessary to divert water from several small tributaries of the Sudbury River into the existing system and a beginning was made on November 15 of such diversion of water.

Kansas City, Missouri, Aqueduct. On Oct. 28, 1927, the Missouri Valley Water Tunnel, a concrete lined tunnel 7½ ft. in diameter and 15,570 ft. in length, was holed through. This tunnel connects the 6-ft. Turkey Creek tunnel, extending to the Turkey Creek Reservoir and high-lift pumping station, a distance of 11,000 ft. The Missouri Valley Water Tunnel was constructed by means of a heading driven from each end and it was found necessary to timber the roof for almost the entire length. In the construction of the tunnel, gas was a serious difficulty and caused an explosion in which eight men were killed in the previous year. All machinery was required to be operated by compressed air and the lighting was done by a cap light with a closed type of electric battery or a permissible battery approved by the U. S. Bureau of Mines. A special type of dynamite had to be used and the work was attended with unusual difficulties. The practice pursued was to drive the heading in stretches of 1000 to 1500 ft. and then to place the concrete lining. It was expected that the lining, routing, clearing out and testing would be accomplished by Apr. 1, 1928, and the tunnel would be in service by May, 1928.

Toronto Water Supply. During the year plans were drawn for an additional water supply for the City of Toronto, to cost over $14,000,000. The work involved the construction of a tunnel beneath Lake Ontario having a capacity of 360,000,000 gallons daily, with steel conduits, extensions to a submerged inlet in 52 ft. of water, pumping and purification plants at the shore end of the tunnel, a long filter water tunnel extending the length of the water front to the main pumping station and beyond to a new pumping station, as well as a distributing reservoir and distributing system. The lake and land tunnels which were to be through shale were to have a combined length of 10 miles. Three steel laid conduits between the lake shaft of the tunnel and the intake exit were to be constructed, of which one with 150,000,000 gallons capacity daily was to be built at the outset. The land or filtered water tunnel was to have a capacity of 168,000,000 gallons daily up to the John Street station and 60,000,000 gallons daily for the remainder of its length. The lake intake tunnel and steel conduits were to extend from a combined high- and low-lift pumping station in Victoria Park and were to involve the tunnel 10 ft. in diameter and 3300 ft. long to a submerged shaft in 30 ft. of water from which ultimately three 8-ft. steel pipes 4250 ft. long with a capacity of 150,000,000 gallons daily would lead to a submerged intake in 52 ft. of water. As stated, only one pipe was to be laid at the start.

The filtered water tunnel was to consist of two portions, the first being a tunnel 7 ft. in diameter, with a capacity of 168,000,000 gallons daily, extending 30,500 ft. from the Victoria Park pumping station to the John Street high-lift pumping station, and a 6-ft. tunnel, 19,000 ft. in length with a capacity of 60,000,000 gallons per day to a new high-lift pumping station at Parkside Drive. In addition to these main tunnels an extensive system of new mains was also contemplated.

Ben Nevis Aqueduct. In Great Britain a notable long water tunnel piercing Ben Nevis, the highest mountain, was under construction to convey water to a hydro-electric plant. This tunnel was 16 feet in diameter and ultimately was to be 16 miles in length. Twelve side adits were driven at intervals throughout the length of the main tunnel and, when these reached the main tunnel location, boring was started in either direction until the next boring face from the adjoining adit was reached. In other words, there were 24 faces available so that more men could be put to work and the time for completing the job reduced. The principal construction feature was to provide adequate fresh air and to remove the fumes and dust produced by blasting. At each of the 12 adits a motor-driven fan drew the foul air through sheet metal ducts, away from the working faces, causing a constant circulation of the fresh air throughout the tunnel. These 12 fans moved about 300,000 cubic feet of air per hour and two additional fans were employed as boosters.

During the year the Public Works Department of Cuba had in progress plans for the construction of an aqueduct for the city of Havana. The estimated cost of this project was $15,000,000.

See Water Works and Water Purification.

ARA'BIA. A peninsula in southwestern Asia to the south of Syria, Mesopotamia or Irak and the Persian Gulf. The area is estimated at from 1,000,000 to 1,200,000 square miles, the higher figure including the Syrian desert and the Sinaitic peninsula. Estimates of the population range from 4,000,000 to 7,500,000. The divisions of the country in late years have been defined as follows:

(1) Hedjaz. Hejaz or the kingdom of the Hejaz was an outgrowth of the World War and after a very precarious existence was compelled to submit to the domination of the Sultan of Nejd at the very end of 1925. During its rather brief career as an independent state its frontiers were always in a state of flux, never being definitely defined excepting on the west. The estimated area of the country is about 150,000 square miles and its population variously estimated at from 800,000 to 900,000. The population is largely nomadic, although in recent years some villages have been settled where it has been possible to cultivate the soil successfully. The principal cities are Mecca, with a population of from 50,000 to 60,000 (this is the holy city of Islam, and attracts about 100,000 pilgrims annually; these pilgrims represent the chief source of income of the government); Medina, also a holy city and the seat of Mohammed's tomb, with a population of 15,000; and Jedda, the seaport for Mecca, with about 20,000 inhabitants.

Agriculture in the Hedjaz is not generally practicable, on account of the excessive heat, but in the oases there are large crops, the chief one of which is dates, and in the plateau region wheat, corn, barley, millet, lentils, coffee, and tobacco are raised. There are raised here the famous horses, many of which are sold abroad. The chief exports are hides, wool, and gum; the chief imports, foodstuffs and building materials. The King in 1927 was Ibn Saud, with the title King of Hedjaz and Sultan of Nejd and its dependencies.

(2) Sultanate of Nejd. This state is considered the most important unit in the Arabian peninsula and occupies the highland of central Arabia between the Persian Gulf on the east and the Hedjaz on the west. It is ruled by the Saud dynasty, which represents the old Wahabite empire, founded in 1745. In 1927 the popu-

lation was estimated at 3,000,000. The chief products of Nejd are dates, wheat, barley, fruits, hides, wool, horses, camels, donkeys, and sheep, while the chief imports are piece goods, tea, coffee, sugar, and rice. Reigning Sultan in 1927, Abdel-Aziz ibn Saud.

(3) Jebel Shammar. An emirate north of Nejd and since 1921 an integral part of the Sultanate of Nejd, by which it was captured and annexed. Population, estimated at 250,000. Capital, Hail.

(4) Asir. The principality of Asir lies on the western coast between the Hedjaz and Yemen. Estimated population, 1,000,000; capital, Sabiyah. Since October, 1926, Asir has been under the sultanate of Nejd.

(5) Imamate of Yemen. The area of this state is about 75,000 square miles and the population is variously estimated at from two to three millions. The capital is Sanaa, with a population of about 25,000. Cereals and coffee are produced extensively. Hides form one of the chief articles of export. Ruling Imam in 1927, Yahya Mohammed Hamid ed-Din.

(6) Sultanate of Koweit. This territory subsidized by the British, is on the northwestern coast of the Persian Gulf, and has an estimated population of 50,000. Sultan in 1927, Ahmed ibn Jabir al Subah.

In addition to the above there are comprised within the limits of Arabia the British protectorate of Aden (q.v.) and the Sultanate of Oman (q.v.); also the emirate of Kerak or Transjordania (q.v.).

History. King Ibn Saud appeared to have completely established his predominance over all of Arabia. The year was comparatively free from revolts and one cause of friction was entirely removed by the signing of an agreement between Ibn Saud and the Imam of Asir, by the terms of which the Imam recognized the overlordship of the King in return for which he was allowed to regulate the internal conditions of his country during his lifetime, but was compelled to submit all questions dealing with foreign nations, especially concessions, to King Saud for his approval. At the beginning of the year there was a possibility of strife between the King and the Imam of Yemen, whose position had been considerably strengthened by a treaty with Italy signed in 1926 (see preceding Year Book). The cause of the trouble was largely the desire on the part of the Imam of Yemen to add the Imamate of Asir to his territory. International complications were involved because of King Saud's backing of the Imam of Asir and Italy's backing of the Imam of Yemen. The matter blew over without any bloodshed presumably because Great Britain let it be known unquestionably that further fighting would be unsatisfactory to her.

The annual pilgrimage to Mecca and Medina was attended by the largest numbers since 1924. The pilgrims were given the same courteous treatment and reduced rates which prevailed the preceding year and which apparently strengthened Ibn Saud's claim to the Caliphate. *In connection* with this claim to the Caliphate it might be mentioned that the King of Afghanistan publicly proclaimed his candidacy for the same title during the year.

In September, ratifications of a treaty signed between Great Britain and King Ibn Saud on May 20 were exchanged, in which the British recognized the complete independence of King Saud's country and its dependencies. The treaty was mainly an expression of good will between the two countries and dealt partially with the protection and treatment of pilgrims on their way to the holy places. An unique provision was the promise on the part of the Hedjaz to do everything possible to suppress the slave trade.

ARAMAYOITE. See Mineralogy; also Chemistry under *Mineralogical Chemistry.*

ARBITRATION AND CONCILIATION. See Labor Arbitration and Conciliation.

ARBITRATION, International. The general principle of arbitration had a steadily widening acceptance in the year 1927. In *Arbitration and the United States* (published by the World Peace Foundation, 40 Mt. Vernon St., Boston) 285 treaties in force or on the way thereto were listed, while 17 additional treaties were negotiated since the list was published. For several years few treaties of limited scope had been made and the additions referred to were all unlimited in the sense that they provide for the third-party examination of all disputes without exception by some form or some combination of conciliation, arbitration and judicial settlement.

The most interesting treaty negotiated during the year 1927, in the opinion of many, was the one between Colombia and Switzerland, which according to report leaves out of account the lesser and more or less aleatory methods of conciliation and arbitration and stipulates that judicial settlement is compulsory for all disputes arising between two countries.

The use of a compromisory clause in general treaties had become practically normal. One regularly expects to find it in all bilateral treaties that are not administrative or regulative of a particular point. The habit of including it had even reached London, and it had appeared in several recent treaties. The clause is standard in all multilateral treaties.

By June 15, 1927, the international engagements assigning jurisdiction to the Permanent Court of International Justice had risen to 202 in number, the documents themselves covering almost all conceivable subjects. The Court itself had just about kept abreast of its work. Its session began on June 15 with five matters pending and at the end of the year there were three pending, while the Council of the League was ripening one, and a second was apparently destined to go to the Court. A feature of the Court year was an increase of cases as compared with advisory opinions.

An interesting development was the application of arbitration in the Convention on Import and Export Prohibitions and Restrictions, held in Geneva, Nov. 8, 1927. This was the first international convention bearing directly upon international trade. It was a serious question whether arbitration should be applied at all to the interpretation and application of the convention. By insistence of most of the states represented a treble jurisdiction was provided for a form of advisory opinion upon disputes with appellate jurisdiction by the Court, some of the most important stipulations of the convention being excluded from this normal jurisdiction. By definite acceptance, however, a state can make those stipulations subject to either part of that jurisdiction.

American Arbitration Crusade. A movement under this title was organized to educate the public to accept international arbitration as a substitute for war, and, during the year, it had distributed over 300,000 educational leaflets, including a proposed treaty drafted by Prof. Francis B. Sayre of the Harvard Law School. The particular method suggested by the crusade was that the United States should outlaw war by negotiating treaties with every other nation providing for obligatory arbitration or adjudication of all disputes that may arise between them. For five months the suggestion was made that the first treaty be made with Great Britain. Then came the proposal from M. Briand (see below), and those interested in the crusade at the end of the year were urging that the suggestion of the French Minister for an "outlawry of war" treaty with France be accepted.

British-American Claims. In 1927 there was no commission engaged in the adjudication of claims between the United States and Great Britain. Under the Agreement concluded Aug. 18, 1910, between the United States and Great Britain, which provided for the submission to arbitration of pecuniary claims outstanding between the two Governments, certain claims were scheduled for arbitration and a tribunal was created to adjudicate them pursuant to the terms of the Agreement. The last of the scheduled claims was disposed of by the Tribunal on Jan. 22, 1926. The American Agent submitted a comprehensive report regarding the arbitration to the Secretary of State on June 25, 1926. An arrangement was effected on May 19, 1927, by an exchange of notes between the United States and Great Britain providing for the disposal of certain pecuniary claims arising out of the recent war.

The General Claims Commission (United States and Mexico) held its last scheduled session on July 23, 1927. Of the 51 American claims which were heard and decided by the Commission during its existence, awards were made in 36. The total amount claimed by the United States in respect of these 51 claims was $3,790,796.42. The total amount awarded on the 36 claims decided in favor of the United States was $2,221,659.46. Certain of them draw interest. The Commission heard and decided nine claims of Mexico against the United States and gave favorable decision in five of these. The total amount claimed by Mexico in the nine claims was $440,910. The total amount awarded decisions was $39,000. Subsequently, however, an agreement between the two countries was entered into on August 15, to extend the life of the Commission for a time not exceeding two years from Aug. 30, 1927, the day when, pursuant to the provisions of the original agreement the functions of the Commission would terminate in respect of such claims. During the extended term the Commission was also bound to hear, examine and decide all claims for loss or damage accruing between Sept. 8, 1923, and Aug. 30, 1927, inclusive, and filed with the Commission not later than Aug. 30, 1927. It was agreed that nothing should in any wise alter or extend the time originally fixed in the said Convention of Sept. 8, 1923, for the presentation of claims to the Commission, or confer upon the Commission any jurisdiction over any claim for loss or damage accruing subsequent to Aug. 30, 1927.

The Special Claims Commission had not functioned since the resignation of its presiding Commissioner in 1926, no appointment to fill the vacancy having been made.

Tripartite Claims Commission (United States, Austria, and Hungary). (See Year Book, 1926). The United States in 1921 negotiated separate peace treaties with Austria and Hungary in terms similar to those of the German treaty. These Treaties are respectively known as the Treaties of Vienna, Budapest, and Berlin, and respectively went into effect on Nov. 8, Dec. 17, and Nov. 11, 1921. The Tripartite Claims Commission was established in January, 1926, under the Executive Agreement signed on Nov. 26, 1924, by the Governments of the United States, Austria and Hungary, and became effective on Dec. 12, 1925. The Commission's duty was to determine the amounts to be paid by Austria and by Hungary on account of claims of American nationals similar to those against Germany adjudicated by the Mixed Claims Commission (United States and Germany); Judge Edwin B. Parker, of Houston, Texas, was the Sole Commissioner selected by the three Governments to pass upon the claims. The time for filing claims expired on Jan. 25, 1927, by which time 1631 claims were filed. Somewhat over half of the cases had been disposed of at the end of 1927 and the Commission hoped to wind up its task within six months. It issued administrative decisions disposing of most of the questions of Treaty construction, following generally the decisions of the Umpire (Edwin B. Parker) of the Mixed Claims Commission. The American Agent at the end of the year estimated that the awards would not exceed $3,250,000 against Austria and $750,000 against Hungary, including interest to date.

Mixed Claims Commission (United States and Germany). During the year there were 178 awards made to claimants and 198 claims dismissed. On Dec. 31, 1926, the amount of awards made against Germany totalled $142,407,597.92. During 1927 up to and including Nov. 23, 1927, awards in the amount of $6,682,448.98 were granted. Six decisions were rendered by the Umpire. Three awards and one dismissal resulted from these decisions and two of them were interlocutory decisions requiring additional evidence before a final determination could be made. The latter awards and dismissals based upon decisions of the Umpire were not included in the amount of awards and dismissals above stated. One of these involved a claim for physical impairment while a German prisoner, another the payment of a pre-war debt, and another dealt with a boat lost during the War.

Tacna-Arica Arbitration. There were indications during the year that this difficulty (See Year Book for 1926) might be referred to the League of Nations for settlement, but no steps were taken to that end. Negotiations to settle the difficulties received another set-back in the middle of June, when Col. Rizo Patrón. the Chilean member of the Tacna-Arica Boundary Commission, resigned. The reasons given seemed to indicate that the member from the United States and the Peruvian Commissioner had desired to make some modifications of the rules of the commission, among which was a provision that two members might constitute a quorum; these modifications were opposed by

Colonel Patrón and an *impasse* resulted, as he refused to attend meetings of the commission.

Shortly after Col. Carlos Ibáñez assumed the office of President of Chile he announced a new and decided policy in regard to Tacna and Arica. The following instructions were issued to the Intendente of Tacna and the Governor of Arica:

> 1 It is the firm resolution of the Government to maintain in complete integrity its intention of arriving at the most complete and definite nationalization of the province. To this end it is essential that the Administration should take the form there of intensive nationalistic action, while at the same time rendering the sovereignty of Chile acceptable to all the inhabitants.
>
> 2. Severe and scrupulous order must be the rule in the public Administration, and for this it is necessary that all functionaries must possess qualities of competence and honesty calculated to make Chilean administration efficient and respected.
>
> 3 Careful attention must be bestowed on all the natives inscribed in the plebiscitary electoral registers, who have manifested with sincerity and enthusiasm their adhesion to Chile.
>
> 4. Foreigners who make propaganda against the national interests and against the integrity of our territory will be visited with all the rigor of the law. The Government is determined to expel at once from the province any disturbing element.
>
> 5. Every assistance must be given to Peruvians who dedicate their activities to work and who respect the established order, their rights and interests being protected in the most ample manner possible. This protection must be even more effective in the case of the indigenous population residing in the sub-delegations in the interior—people who, from their weak and timid character and ignorance, may be victimized by the unscrupulous.
>
> 6. Fundamental importance must be attributed to public instruction, so disposing without delay that its organization shall be patriotic in character, and in accordance with the following desiderata: (*a*) It is desired to stimulate civic culture by means of suitable lectures, selected readings from national history and press articles patriotic in spirit; (*b*) to apply strictly the legal prescriptions relating to obligatory primary education, so that no child shall fail to receive the seed sown in the Chilean school; (*c*) to further the work of secondary education, granting the directors of educational establishments the means and facilities necessary to convert the school into a pleasant and appropriate centre of reunion for the families of the scholars; (*d*) to make a special ceremony by the taking of the Oath to the Flag by the conscripts of the different regiments stationed in Tacna and Arica; the ceremony is to take place in the public plazas, in the presence of the pupils of all educational establishments; (*e*) on the anniversaries of the great battles of the Independence, of the combat of Iquique, of La Concepción, Tarapaca, Tacna, the taking of the Morro of Arica, the battles of Chorrillos and Miraflores and the entry to Lima, the flag is to be hoisted over the entrances to the schools with a ceremony at which teachers and scholars will be present, and a lecture must be given recalling the glorious event.
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> 7. In difficulties that may arise between employers and employed, liberty of work must be guaranteed above all, as it is a sacred right; due protection being given, therefore, to workers desirous of returning to their duties.
>
> 8. In cases where these strikes or lockouts may prejudice communications with Bolivia, which are fully guaranteed by the treaty of 1904, the stipulations of that solemn treaty must be carried into effect, if necessary, with the assistance of the army, the navy, the carabineers and the police.

Señor Don Miguel Cruchaga notified the U. S. State Department on August 25 of his resignation as Ambassador of Chile and presented the name of Carlos Davila, editor of *La Nación*, as his successor. It was stated that the resignation of Ambassador Cruchaga and the recall of Señor Don Benjamin Cohen as Secretary of the Embassy could be attributed to "personal differences with the government of General Ibáñez." Back of the resignation and recall lay four months of friction over the Tacna-Arica problem. Señor Cruchaga had been a partisan of the policy of conciliation and coöperation with the American Government. President Ibáñez had stood for the elimination of the United States from the arbitration, and the settlement of the dispute by direct negotiation between Chile and Peru. This programme it was quite generally believed had complicated an already difficult situation.

BRIAND PROPOSALS. On Apr. 6, 1927, the 10th anniversary of America's entrance into the World War, M. Briand, the French Minister of Foreign Affairs, sent a message to the American public through the Associated Press in which he suggested a treaty between the United States and France that would provide for "the outlawry of war" between the two countries. Minister Briand said in part:

> "For those whose lives are devoted to securing this living reality of a policy of peace, the United States and France already appear before the world as morally in full agreement. If there were need for those two great democracies to give high testimony to their desire for peace and to furnish to other peoples an example more solemn, still France would be willing to subscribe publicly with the United States to any mutual engagement tending to outlaw war, to use an American expression, as between these two countries. The renunciation of war as an instrument of national policy is a conception already familiar to the signatories to the Covenant of the League of Nations and of the Treaties of Locarno Every engagement entered into in this spirit by the United States toward another nation such as France would contribute greatly in the eyes of the world to broaden and strengthen the foundations on which the international policy of peace is being erected. These two great friendly nations, equally devoted to the cause of peace, would furnish to the world the best illustration of the truth that the immediate end to be attained is not so much disarmament as the practical application of peace itself."

This statement attracted but comparatively little attention in the United States until Pres. Nicholas Murray Butler of Columbia University in a letter to the *New York Times* on April 25, urged the United States to accept this offer. He said that such a statement from a French Minister was equivalent to a formal announcement by the French government. "The fact that this statement is addressed to the American public instead of formally to the government at Washington," he said, "rather increases than lessens its importance. . . . This question is now squarely before the people of the United States. If those moral forces to which Minister Briand makes appeal do not really exist among us, or, if existing, they cannot secure such direction of our policies as shall realize these ideals, then in international relations we shall have reached a stage which no American who understands his country's traditions and who realizes his country's ideals can look upon without shame and sorrow. Minister Briand's mind is thoroughly practical. . . . All that he asks is that the people of the United States shall take their own way to express the fact that in no case will they employ war to enforce their policies with reference to France."

In a speech before the American Club of Paris in June he further seconded M. Briand's plea for a Franco-American anti-war alliance, declaring:

(1) "France and the United States should agree firmly to renounce war as an instrument of public policy between themselves . . ."; (2) "Both nations should accept the Locarno definition of an aggressor as 'that nation which, having agreed to settle differences by arbitration and justice, proceeds to attack another nation without having done so . . .' "; (3) "If there is a war of aggression we will not aid the aggressor."

"That is all," said President Butler. "Three short paragraphs, each of which can be learned by children in school."

The U. S. State Department was ready to begin negotiations with the French Government for a treaty renouncing war forever as between France and the United States. The official announcement was made that Ambassador Herrick had been instructed to inform M. Briand of the entire willingness of our Government to take up his suggestion. There was a statement from Washington to the effect that there really was no need of such a treaty with France, since the Bryan treaty amply covered the field into which the Shotwell-Chamberlain draft treaty for "the outlawry of war" ventured.

This statement that the Bryan treaty with France was still in force because it had never been formally denounced was misleading. Neither country, it is true, had formally notified the other that it regarded the treaty as no longer in force, yet both countries had allowed it to go by default. The Bryan treaties called for the appointment of commissioners to investigate and report upon any international controversy which could not be settled by diplomatic means. In fact the whole vitality of the treaty lay in the existence of these commissions. Until the Briand proposal they had virtually ceased to exist. The American representative on the French-American Bryan Commission was Richard Olney, who died April 9, 1915. The French member was Louis Renault, who died Feb. 9, 1918. Neither France nor the United States reappointed a representative until Sept. 12, 1926, when President Coolidge appointed Sen. Oscar W. Underwood as the American representative.

In the case of the Bryan treaty with Great Britain, the United States representative, Judge George Gray, died in August, 1925, and the British member, Viscount Bryce, died in January 1922. No appointments were made until Sept. 12, 1927, when the President appointed former Sen. Irvine L. Lenroot as the American national member and former Ambassador Jusserand as the American non-national member, which appointment was subsequently accepted.

Bulgaria's Minister in London was appointed the American non-national member on the Norwegian-American Commission and Justice Edvin Alten was appointed the Norwegian National member.

The only other countries with which the Bryan treaties were in full force and effect in 1927 were Portugal, Denmark and Sweden.

Three drafts were prepared to carry out the suggestion of M. Briand, one by the American Foundation, another by Francis B. Sayre for the Women's International League and the American Arbitration Crusade, and a third for the Carnegie Foundation. The latter, drafted by Professors Joseph P. Chamberlain and James T. Shotwell, of Columbia University, was built upon the already existing agreements which the United States has entered into with other countries. It takes up the problem of peace and from a different angle from that of the post-war controversies concerning either the League of Nations or the World Court. It goes back of these post-war discussions and bases its suggestions for the alternatives for war upon treaties made by the United States before there was a League of Nations or a World Court. The plans for international arbitration, international justice and conciliation were based upon American precedent and repeated in large degree the texts of American treaties ratified, as it happens, under both Republican and Democratic Administrations. The Treaty of Arbitration which was incorporated in this larger draft was the work of one of America's greatest statesmen, Elihu Root, during the presidency of Theodore Roosevelt. It was modified seriously by the reservation inserted by the Senate and therefore represented both the ideas of one of the greatest secretaries of state and the cautions and reservations of senatorial action. On the other hand, the proposal for "conciliation" rests upon the work of Mr. Bryan under the presidency of Woodrow Wilson.

Both of these devices were set up before the post-war discussions and plans for world peace, and "vital interests, independence and the honor of the country involved," were excepted. As wars arise from questions of vital interest and national honor or the threat to a nation's independence, these treaties did not even so much as touch the supreme question of the renunciation of war between civilized nations. The Bryan treaties only called for "breathing space," during which investigations could be made; but the investigators were not even to risk suggesting any solution of the dispute because that would, according to the old ideas of sovereignty, be an interference with a nation's free choice of action in matters of vital interest.

No greater contrast to these partial measures of peaceful settlement and the complete renunciation of war as "an instrument of policy" can be found than in the Locarno treaties. In them, now the basis of the international law, between the Great Powers of Western Europe, war of aggression is renounced by all concerned, and only defense is legitimate—defense of other countries attacked by an aggressor as well as of the signatory itself. This last point of the recognition of the legitimacy of coöperative defense is a fundamental principle of the Covenant of the League of Nations and, as such, is recognized by the Locarno Powers because they are also members of the League. The treaties of Locarno, however, are very simple in the obligations they enforce. No Locarno Power can wage war on another in order to enforce its policy or to further its own self-interest.

The Chamberlain-Shotwell draft is similar to that of Locarno, which falls into three parts, the renunciation of war and provisions for arbitration and conciliation. The Locarno Treaties, however, have behind them the sanction of the League of Nations which makes them much more ironclad than this draft which attempts to state a compromise between American history and precedent and the new experiments of Europe. The greater degree of elasticity which is implied in the arrangement may ultimately offer some new suggestions for the solution of this world-old problem.

The American Foundation's draft took the form of a treaty suitable for universal application. It embodied the principle of arbitration and judicial settlement of a universal and compulsory character. Widespread opinion favorable to the omission of the clause excepting questions affecting "vital interests, independence or national honor" from the scope of any treaties signed was disclosed by the American Foundation. This omission of the traditional clause was the chief feature of the draft treaty made public on May 29. The Foundation called attention to the fact that there existed but one precedent in the nation's treaty history for the omission of the "nullifying" clause. The exception was in the treaty of May 3, 1923, to prevent conflicts between the American States, the signatories being the United States, Brazil, Guatemala and Paraguay. This treaty provided for the settlement of "all controversies which for any cause whatsoever may arise." The Foundation observed in its statement that the treaty of May 3, 1923, was merely a conciliation treaty, but that the omission "has great point in representing a departure from an historic policy."

In commenting on this clause, John W. Davis, formerly Ambassador to Great Britain, said: "I think that the time is opportune for a campaign of education against the nullifying clause in our arbitration treaties. The exception from such treaties of questions affecting 'the vital interests, the independence or national honor' of the United States makes of the treaty little more than an agreement to arbitrate if, when and how we wish, and not otherwise. This much could be accomplished without any standing treaty of arbitration at all. No nation, presumably, will arbitrate, or would be asked to arbitrate, a question involving its national independence. This much of the qualifying clause is quite unnecessary. But no definition can ever be given of the phrases 'vital interests' and 'national honor.' They are broad enough to cover every subject on which any two nations might disagree or to which arbitration might be addressed."

The sentiment of those who had commented on this draft ran very much along the same lines.

Francis B. Sayre's plan provides for a series of treaties, covering even matters of national honor, vital interests, and the interests of third parties. It looks toward a greater use of the World Court than does either of the others. It gives jurisdiction over five kinds of disputes to that court, a plan closely related to the projects originally adopted by the Committee of Jurists for the establishment of the court.

As a part of the church programme for the Armistice Day period, a delegation of representative leaders, convened by the Federal Council of the Churches, waited on President Coolidge and the Secretary of State, on November 2, and presented a memorial urging the Government to accept the proposal of M. Briand. This memorial strongly urged also that this step be made the occasion for a declaration of policy that the United States desired to make similar treaties with all other nations. This memorial signed by over 700 churchmen, was presented by a committee headed by Bishop William F. McDowell of the Methodist Episcopal Church. It set forth that the signers believed that the American Government should coöperate to the fullest possible extent with the other nations of the world in taking effective steps toward the substitution of peaceful methods for those of force in the settlement of disputes between nations, and therefore, heartily welcomed the proposal of M. Briand that France and the United States should make mutual engagements for the renunciation of war as an instrument of national policy. It further set forth that the signers believed that war should never again be resorted to by civilized nations as the means for settling disputes or enforcing claims; that war, save for self-defense against actual attack, should be outlawed and declared by the nations to be an international crime; that the renunciation of war by treaties and solemn engagements should be undertaken between all the principal nations, adequate provision being made for conciliation, mediation, arbitration and judicial settlement; that such engagements constitute an essential measure in creating the spirit of mutual confidence which must precede a general movement for disarmament; and that the settlement of every threatening dispute, whatever its nature, should be sought only by pacific means.

In connection with the Briand proposals it was interesting to note that he was to be one of the speakers at the Centenary Meeting of the American Peace Society.

ARBORETUM, NATIONAL. See AGRICULTURAL LEGISLATION.

ARCHÆOLOGY. If possible an intensified interest in archæology was apparent during the year 1927. The chief fields of activity were Egypt, Mesopotamia, Syria, Greece and Italy. It is especially to be noted that there was an awakened enthusiasm for exploration in the Bible Lands.

Italy was continuing aggressively her work in Cyrenaica. At Slonta, in the "Grotto of the Images," the most interesting finds have been made in the way of relief sculptures. All the lower walls were ornamented with human heads combined with animals and serpents. All were cut in the primitive style familiar from the anthropomorphic vases from the Troad. In Cyrene itself excavations were still going on. The most important discoveries are connected with the temple and altar of Apollo which date back to the time of the founding of the city. The construction of the building employed brick and wooden beams much in the fashion of the Minoan palaces at Crete. The altar proved to be 70 feet long thus making it one of the largest known in the Greek world. Other places excavated by the Italians are Sabratha and Leptis Magna. Sabratha is largely Roman and Christian while Leptis Magna is Roman.

In Egypt at Giza the expedition sent out by Harvard University and the Museum of Fine Arts in Boston has been occupied with work on the tomb of Hetepheres, the mother of Cheops. When opened on March 3 the sarcophagus was discovered to be empty. Shortly after this a concealed recess was discovered on the west wall. In it was found an intact burial which gave the first chance in Egyptian exploration to examine the burial of an important individual of the early dynasties. The tomb was a secret one located at the bottom of a shaft about 100 feet deep which had been filled up after the interment. A doorway cut in the rock led to a tomb of an Egyptian princess, Queen Meresankh. She was the granddaughter of Cheops.

At Karanis in the Fayum district the University of Michigan expedition under the control of the late Professor Kelsey found some interesting material. A small hoard of gold coins of the second century A.D. came to light and in addition a couple of letters written home by a lad who had gone into military service in Italy. Since the boy could not write he employed two different scribes to compose his epistles for him. There is a modern touch in them in the tone of homesickness that pervades them. Of particular interest among the finds was a waxed tablet which still preserved its writing in excellent condition. It is a legal document in which a woman certifies to the birth of twins.

Also in the Fayum, near Lake Karun, was discovered a cave which contained human remains together with fossilized fish and long, sickle-shaped scrapers. In the western desert in the Kharga Oasis the Egyptian Service found a necropolis.

At Luxor the Liverpool University expedition has uncovered a long corridor vaulted with brick and north of it an enormous sarcophagus which apparently was for the mummy of the sacred bull. The sarcophagus, of sandstone, is eleven feet long, eight wide and ten high. The lid is two feet thick. The tomb had been rifled.

The French Institute of Oriental Archæology has been busy at the temple of Madamna where many statues of Senusrit III together with many inscriptions came to light. These finds show that the temple belonged to the 12th dynasty. The clearing of the Ptolemaic temple and the Roman buildings associated with it uncovered a sanctuary over 120 meters in length and 52 in breadth. The building had been commenced by Tiberius and was completed by Antoninus Pius.

At Memphis the Antiquities Department of the Egyptian Government discovered a tomb of the third dynasty. It is located at Sakkara and may prove to be the earliest yet found in Egypt. It lies within the boundary wall of the Step Pyramid and was well concealed. There is a possibility that it may prove to be the tomb of Im-hotep, the architect of King Zoser. A stairway of 100 steps led down to the tomb. Other stairways and tunnels led from the main tunnel to a series of underground rooms, the walls of which were sheathed once with blue tiles. Among the interesting finds in these rooms is a portrait of King Zoser.

The most important find of the Egyptian Exploration Fund at Tell el-Amarna is a hall in which Akhenaten dedicated to Aten the tribute he received from Asia and Nuoia. Explorations in the houses of the town have illuminated the conditions of living in the time of Akhenaten. The walls of the bedrooms were very thick to keep out the heat. One house had a bathroom and in another dwelling was found a statue of the goddess Taurt showing that the king had not succeeded entirely in wiping out the idea of polytheism.

Near Thebes the French have uncovered a temple called "Sacred Lake." One of the most interesting finds occurred in the Temple of the Ptolemies where portions of a very old building came to light. Therein were bas reliefs representing religious ceremonies and one long inscription of an historical nature. It is thought to be the first monumental material found dealing with the 13th dynasty.

In the winter of 1926–27 work was carried on in the innermost recess of the tomb of Tutankhamen. It was found to be filled with every conceivable object. The dimensions of the room are 15 x 12 feet and 8 in height. In this small room everything was as the workmen had left it. Among the objects found were emblems of the underworld, boats, chariots, etc. The most interesting of the finds were boxes in which were the king's decorations and jewelry, his toilet articles and slippers. Besides these there were found over 30 fine statuettes. Most unusual was the finding of the ostrich plume fan of the king in practically perfect condition. The workmanship of the handle is most delicate.

Palestine in 1927 received a great deal of attention from archæologists. Beisan, the Bethshan of the Bible, was excavated by the University of Pennsylvania. Up to the end of 1927 work had centred on Tell el-Hosn where eight levels had been investigated. The time covered by these strata runs from before the period of Amenhotep III down to Arabic times. The lower part of the upper level of the stratum dating before Amenhotep lies 37 feet below the present ground level. Two new Canaanite temples were discovered. A door jamb with the portrait of the builder of the temple of Dagon, Rameses Wesr-Khepesh, came to light. From the lower pre-Amenhotep level came many interesting finds—considerable finely decorated pottery showing affiliations with the Mediterranean, portions of the trunk of a date palm showing that at that time this tree was growing at Beisan, a bronze trumpet mouth resembling the one of silver from the tomb of Tutankhamen and five steps belonging to a small Canaanite temple.

In the stratum of the time of Rameses II the digging revealed two Canaanite temples, one dedicated to Ashtoreth the other to Reseph. In the latter was found a small bronze figure of a seated god covered with gold leaf. A lapis lazuli scarab gives the time 1970–1935 B.C.—the time of Sesostris I. In the early Seti Ist. level 30 rooms have been cleared. In one of them was a large quantity of corn. In the level of Rameses II were found nine bricks showing the imprints of the feet of a small child and those of the paws of a dog and the front hoof of a gazelle. Among the other finds to be mentioned are the heads of an elephant, a bull, a dwarf god and the goddess Ashtoreth. Very important was the recovery of a cylinder seal with three lines of Babylonian script stating the following: "Manem, the diviner, the servant of the god Enke." It dates about 1819 B.C. In addition there turned up a Cypriote bowl to the surface of which adhered gold dust. Also was found a splendid double pointed spear—but which probably was the property of some Mediterranean mercenary of the time of Amenhotep III.

At Gaza, Petrie working for the British School found a massive wall 27 feet high on the north side of the city mound. The upper courses may date about 1400 B.C.

The British in the winter of 1926–27 excavated the site called Tell Jemmeh. The town of Shishak was found under the town of the time of the Jewish kings. In all six cities were cleared dating from 1500–400 B.C. About 1200 appeared furnaces for smelting. Picks, hoes, and ploughshares turned up. No gold was found except nine earrings. Except for one these dated about 1200 B.C. The town of Shishak was well built. In several houses were jars containing jewelry.

El Qudah, the Hazor of the Bible (Josh. xi. 10–13) was a stronghold of the Canaanites destroyed by Joshua. It was a fortified camp capable of holding 40,000 to 50,000 men. Within the enclosure the excavations revealed one or two buildings and fragments of basalt columns. The site was occupied mostly in the bronze age. The Canaanite culture came to a close about 1200 B.C.

The 1926–27 work at Jerusalem made possible the identification of the third wall. Near to the American School was a large rock scarp which was uncovered near the gateway by the tower which is identified as the Tower of Women referred to by Josephus.

The Harvard University Expedition was at work at Samaria. It was found that the city was originally built by Omri (I Kings, xvi, 24). The excavators discovered the palace of Omri and the "Ivory Palace" of Ahab. The private houses were made of cut stone as described by Amos. An important find was that of 61 potsherds inscribed with the accounts of the palace. They are written in the old Hebrew alphabet.

At Sheikh Sa'ad in the Hauran the Czechoslovakian Mission continued its excavations begun in 1924. This is the site of Karnaim of the Old Testament, and contained Hellenistic sculptures cut in basalt. Also the sanctuary of Job was cleared. Its construction followed the rule in the Hauran of using flat slabs of stone for the roof. The so-called "Stone of Job" proved to be a stele of Rameses II.

On the site of ancient Mizpah excavations revealed the remains of an old Semitic temple and the parts of an earlier structure under it. In one of the rooms of the temple came to light some flint knives which were used in religious ceremonies. Nearby were found cups and bowls to hold offerings. Beneath this room in storerooms and in caves were recovered different kinds of pottery together with tomb deposits belonging to the days antedating the time of Abraham. Seven miles north of Jerusalem, at Tell en-Nasbeh, were found walls of tremendous strength, dating probably about 1800 B.C. The top of the hill was encircled by a wall which averaged 16 feet in thickness and in places rose to a height of 25 feet. The enclosure amounted to about eight acres. In this area were found circular grain pits about 5 feet deep and 3 to 4 wide. Nearby were nine rock-cut cisterns in which were lamps and bits of jars which had accidentally been dropped in the wells when the women of the place were drawing water. The place was occupied in the period of the exile.

At Jemdet Nasr, 17 miles to the northeast of Kish in Mesopotamia, has been found a quantity of wheat contained in a red and black jar. This is the only instance of cereal ever found in early Mesopotamian levels. The date is around 3500 B.C.

The expedition sent out by the University of Pennsylvania and the British Museum was most successful. The work was carried on in the cemetery at ancient Ur. The topmost levels brought to light graves dating around 2600 B.C. Cylinder seals bearing the names of the household of the daughter of Sargon of Akkad afforded the date. Just below these graves were similar but earlier ones, in which the bodies were placed in basket-weave coffins or merely laid in holes that were lined with matting. In this level came to light the lapis lazuli seal of Nin-Kur-Nin, the wife of Mesannipadda who founded the first dynasty of Ur. This level of graves dated from 3200 to 3100 B.C. The next lower stratum of burials was still older, and richer in material. Here were found tablets written in a semi-pictographic style and seals carrying the names of kings whose names were previously unknown. This level dated about 3500 B.C. The most recent discovery is the burial of Meekalamdud, a prince of the royal blood living about 3500 B.C. The body was found at a depth of 25 feet, and not in the usual basket coffin or simply wrapped in matting, but in a heavily built tomb of rough limestone. The walls were over 3 feet in thickness. The roof was an arch of corbelled stones which were supported upon wooden beams. There were two chambers, the outer one for attendants who seem to have been buried with the prince, the inner for the King himself.

The tomb had been rifled in antiquity. In the inner chamber only a few beads and instruments were found. In the outer chamber was one body still with its head ornaments of gold and silver and strings of beads. Beside another was a heap of copper vases and one silver bowl with fluted sides. Another find was a copper rod standing upright in the soil marking the shaft of the tomb at the bottom of which were found stone and copper vases. In the shaft was found a spear with a bronze head and a gold-mounted shaft standing upright at the corner of a coffin. Against each end of the coffin were spears upright in the ground. Beside it were vases of steatite and alabaster. At the foot was discovered a corroded mass of vases and bowls from which three of silver have been recovered.

Earlier discoveries on the site of Ur belonging to this year's results are, between the joint temple of the god and goddess of the moon, a door socket bearing inscriptions of King Marduk-nadin-ahi (1117–1100 B.C.), and a casket lid with the first Phœnician inscription found in Mesopotamia. One cannot leave the subject of these excavations before recording the discovery of the remarkable golden dagger with its fretwork sheath also of gold found on the site.

At Athens in Greece on the site of the royal stables has been found a beautiful fourth century vase about a foot in diameter which had been used as a funeral monument. It contained human bones. On the site of the Odeum of Pericles further investigations were carried on. At Corinth two groups were at work; one under the direct care of the American School, the other a more or less private undertaking of Professor Shear. The School worked chiefly on the Lechaion Road and in the Odeum. On the road the chief effort was to clear it as far as possible. Some coins were found dating as late as the tenth century of our era. Generally speaking, the Lechaion Road was found to be in good condition. In the Odeum the *cavea* was laid bare.

Perhaps more interesting than these results were those of Professor Shear. In the theatre he uncovered a series of pictures of atheltic and acrobatic feats painted in bright colors on a high wall which surrounds the orchestra. The floor of the orchestra itself was covered to a depth of 40 feet with earth. The chief figure is represented with red boots and a purple coat giving the suggestion that here perhaps is represented some emperor. This figure is represented in the act of spearing a huge lion behind which is a gladiator in the conventional short costume of that class. Coins found dating in the fourth century show that the theatre was not rebuilt or re-used after the destruction of Corinth in 396 A.D. Among the other finds were a colossal draped male statue covered with its original pink paint and a splendid head of a youth which preserves traces of dark red in the hair, on the lips and on the irises of the eyes.

Work was resumed in Crete chiefly at Knossos by the British School and at Gortyna by the Italians. In the latter place the excavation of the Roman Prætorium was carried on. The palace of the proconsul was shown to be the largest and most luxurious residence of any provincial magistrate in the east. The building was flanked by a splendid portico of Corinthian columns 3 feet in diameter. The building was equipped with every comfort such as porches and corridors to afford protection against the heat, baths, etc. The latest digging revealed an apse and a tribunal in which was a statue of Justice. Near St. Theodore a group of pre-Mycenæan buildings was found. Near to the sea was a large square structure in which were found jars containing Mycenæan inscriptions. This place was possibly the port of Knossos. At Epidauros, Cavvadios has cleared the Double Portico.

At the Heraion in Argos, Blegen carried on his second campaign which resulted in the discovery of seventeen Mycenæan chamber tombs. From the digging a mass of new important material came to light. The tombs date from the time of the shaft graves at Mycenæ down to the transition from the Mycenæan to the Geometric period. All the tombs are of the well-known type with dromos, doorway and chamber. There was an average of 10 burials in each tomb. Among the objects found were ivory combs, and ornaments and a dozen knives and daggers, spearheads, arrowheads, and mirrors.

At Locris near the little harbor of Hagios Constantinos the precinct of Kenaion Zeus was explored. It has a curious pentagonal shape with its southern wall following the curve of the beach at a distance of about 50 paces. The towers and parts of the adjacent walls are built of blocks of poros. The rest of the walls are of smaller volcanic stones laid to produce a thickness of three meters. No pottery before the fourth century was discovered. From then it continues until the Græco-Roman times. At Nicopolis excavations were carried on in front of the gate of the basilica of Doumetios (3rd century A.D.). The whole of the west side was cleared. Work also was done in the precinct of Augustus. Here four new blocks of the important inscription on the side of the building were found. At the Amphiareion at Oropos work was done on the Portico with Fourteen Columns and in the theatre.

In Italy in the valley of Aricia remains of a very early temple were discovered. Here were found abundant deposits of votive offerings of the fourth to the third centuries. At Bolsena a Roman villa was excavated in which are preserved some traces of decoration. The most important find was a small bronze variant of the Doryphoros type. At Cumæ progress has been made in clearing the Grotto of the Sibyl and a companion approach cut in the rock under the temple of Apollo. In Sicily at Girgenti two beautiful archaic Greek altars have been found by Captain Hardcastle. They are near a temple of Castor and Pollux. One is square in shape and 15 feet on the side, the other is circular and 25 feet in diameter. Around the latter are graceful terra cotta figurines. In the temple of Zeus more fine fragments of a colossal figure were recovered. The figure belongs about 470 B.C.

Excavations were begun at Herculaneum in May. As the old level is about 80 feet below the present ground level and the covering mass is a hardened volcanic mud the tremendous labor involved can be appreciated. To cut this hard stuff pneumatic drills were being used and much progress was made. The locality chosen for the first work is near the house of Argus from which previously the finest frescoes from Herculaneum have been recovered.

The *cavea* of the theatre at Ostia was cleared and completely restored. During this work all the rooms on the fourth side of the Piazzale delle Corporazioni were found. Close to the spring of Acquaria near Paterno was located an interesting necropolis of the third century A.D. The burials are in the rock with *arcosolia* and a series of tombs in concrete.

Work was being pushed at Pompeii in the Via dell' Abbondanza. Among the finds are to be mentioned a bronze statuette of Apollo, one of a girl, and a chiselled cup of silver. The latter was discovered in the carbonized remains of a wardrobe. Besides these were found many wall-paintings in the seventh *insula* of region one. Here were some of the richest homes in Pompeii. In this quarter the house of P. Cornelius Tages was cleared. This man was a notable person. It was also found that his home, The House of the Bronze Boy, is most irregular in plan, due to the fact that the owner with increasing wealth acquired neighboring buildings which he combined with his own. In this house of Tages there are over 20 rooms on each of the two floors. In the two dining rooms were found some very interesting wall-paintings —some mythological, others purely decorative. The most interesting are the Egyptian landscapes in the summer dining room. Between the house of Tages and Paquinus Proculus were discovered three smaller but equally elegant houses of which one belonged to the priest Amandus. In it in a corridor were found the skeletons of nine people who had been overcome by the gases and ashes of the eruption. From the splendid dining room of this house came some of the finest frescoes. Among them should be mentioned Hercules in the Garden of the Hesperides, the Meeting of Galatea and Polyphemus, the Rescue of Andromeda and the Flight and Fall of Icarus.

Near the Villa of the Quintilii in Rome was found a fine head of Dionysos in the archaizing style. It has been suggested that it may be a copy of the lost work of Alcamenes the contemporary of Phidias. At the foot of the Quirinal stupendous foundations were uncovered. At Hadrian's villa statues of dancing mænads in the style of the Hellenic period have been discovered; also a replica of the Crouching Venus of Dædalses of Bithynia. Another find is a fine Greek head of the fifth century Greek type.

In the island of Elba were found a number of tombs which are thought to belong to the Trojan War period. They are located near the Porto Ferraio. The structures consist of roughly hewn slabs of slate. In each were skeletons.

Not far from the village of Puente Mayorga near Gibraltar was discovered a marble sarcophagus of the strigillated type. It is believed to be of Phœnician or Roman origin. The site on which it was located is the necropolis of Carteia.

In the island of Minorca a group of prehistoric monuments were investigated. They are (a) great stone mounds called "Talayots" and (b) stone monuments shaped like the Greek tau and called "Taulas." It was learned that there is no connection between these and the nurhags of Great Britain. They stand without parallels. The Talayots appear to have been funeral pyramids and the Taulas sacrificial altars.

At Radenac in France was discovered a Roman fort with stonework and walls 600 feet in diameter. The place was destroyed by fire. The discovery of iron lances and other objects show that the fort was an important one.

The most notorious discovery of the year in France, if measured by the acrimonious discussion that arose over it, was the finding of what has been held by some to be relics of the neolithic age, found at Glozel near Vichy. The find consisted of a few polished axes, pebbles decorated with outlines of animals and inscriptions, perforated pebbles, flat rings of polished hard stone, harpoons and needles of horn, crude clay vases and some 50 clay tablets covered with alphabetiform signs. Those who defended the genuineness of the finds pointed to the resemblance that the signs bear to Phœnician and Iberian scripts and to the parallel that the sculptured forms offer to those of the stone age in Portugal. These advocates say that the finds represent the transition from the palæolithic to the neolithic age and that in view of the evidence offered the palæolithic age must be put much later than it is now. On the other hand the skeptics pointed to traces of glycerine in the bottom of the scratches and reject the whole thing as a "plant." At the end of the year a group of scholars were endeavoring to determine the truth of the matter.

In England on the site of ancient Kanavium a Roman fort has been excavated. Originally the place was surrounded by a clay bank with a double ditch outside the bank. The fort dates in the first quarter of the second century of our era. At Otford near Sevenoaks the ruins of a small summer villa of the first to the second century were cleared. The place was destroyed by fire. Recent excavations on the site of Uriconium at Wroxeter in Shropshire revealed the largest building of Roman date yet found in England. It was the market place of the town erected by the Emperor Hadrian. Many other buildings were unearthed and all showed traces of burning. Several skeletons were found one of which was in an "hypocaust." In its hand was a box which once contained the coins which were found spilled on the ground nearby. These coins date from the third year of our era. Other discoveries were the tracks of Roman sandals in the soft cement, a steel cock's spur and a surgeon's lancet. In the Isle of Wight was found a Roman villa from which considerable pottery and some coins were recovered.

At Toszeg on the river Tisza in Hungary were found evidences of bronze age habitations. The material consisted of the remains of hut-floors and fragments of mud that had fallen from the burned wattle and daub walls of the huts; the accumulation of the débris of succeeding settlements that had been built on the site. The mound before excavation was about 14 feet in height. The place, as indicated by the potsherds and implements, was occupied for about 1000 years. The exploration of the site was carried on by a joint expedition sent out by Cambridge University and the Hungarian National Museum.

It is interesting to note that the lowest layers of the mound show the influence of Asia Minor culture, such as is revealed in Cyprus and the Troad. The site thus seems to be on the road followed by those adventurers from the Mediterranean who pushed north in quest of gold. See ANTHROPOLOGY.

ARCHERY. The 47th annual tournament of the National Archery Association of America was held at Boston in August, the men's championship being won by P. W. Crouch of Newton Center, Mass. The result was determined by adding together scores and hits in both the Double York and Double American rounds. R. P. Elmer of Wayne, Pa., captured the Double American Round but Crouch had sufficient lead in the Double York Round to offset this reverse. Mrs. Robert Johnson of Los Angeles, Cal., carried off the women's title after a close struggle with Mrs. Dorothy Cummings of Brookline, Mass., the defending champion. The championship for boys, under 16 years of age, went to Ware Lynch of Greenwich, Conn.

ARCHITECTS, THE AMERICAN INSTITUTE OF. The national organization of the American architectural profession, founded in 1857. It is governed by officers and a board of directors elected by and responsible to the delegates from the 58 chapters, assembled at the annual convention. The objects of the Institute are to organize and unite in fellowship the architects of the United States, to combine their efforts so as to promote the æsthetic, scientific, and practical efficiency of the profession, and to make the profession of ever-increasing service to society, and to spread an understanding of art and service among the people. Its activities include, devising methods for improving and extending architectural education, not only in the universities, but in the lower schools; securing proper laws for the registration of architects in the various states; developing a service for architects which will give them for their actual problems data relative to building materials and methods obtainable from no other source; maintaining a public information service to tell the prospective builder the financial as well as the æsthetic service of the architect. The Institute maintains active standing and special committees on various branches of its work and allied fields. The directors and executive committee hold quarterly meetings in various parts of the country and the regional directors keep in active touch with the work of local chapters throughout the year.

At the 60th annual convention of the Institute which was held in Washington, D. C., May 11–13, 1927, a large measure of attention was given to the discussion of architecture as an art and to the development of a plan for bringing about real working collaboration between the architect, the landscape architect, the painter, the sculptor and the craftsman. The Board of Directors reported the completion of arrangements for the French Traveling Fellowship, and the receipt of $1500, the gift of Julian Clarence Levi, to meet the expense of bringing the first appointee, Marcel Gogois, from France to the United States to study. Recommendations were made by the Committee on Public Information relative to the constructive development of the publicity system inaugurated in 1926, and another report was rendered, by the Committee on the Plan of Washington and Environs, calling upon the local chapters to do their part in influencing Congress to effect certain improvements to insure the future greatness of the national capital. George C. Nimmons submitted a report on the art courses given under the grant of the Carnegie Corporation, by which the Institute received $10,000, which enabled the Committee to invite 21 colleges to take courses at the Art Institute in Chicago. Under this plan colleges were invited to send to the Institute their best art teachers, to receive a special intensive course in the fine arts, which they in turn reproduced in the following year to the students of their institutions, in an effort to educate the public to a more intelligent interest in and knowledge and appreciation of architecture and the other fine arts. It was reported that the Carnegie Corporation had again granted $10,000 for carrying on this work in 1927, to be given at Harvard University instead of at the Art Institute in Chicago. In addition to the reports of the various committees, numerous lectures and addresses were given. Richard G. Bach, of the Metropolitan Museum of Art in New York, addressed the Institute on "American Industrial Art"; Wilbur Watson spoke on "The Historical Development of Bridges"; and Charles Moore delivered an address on examples of collaborative achievements in architecture.

The endowment fund capital of the Institute amounted to approximately $75,000, the income from which was devoted to the maintenance of the Octagon House in Washington; the property and funds totaled $255,055.63, of which $46,176.16 belonged to the Waid Education Fund, the income being used to defray expenses of lecturers sent out to various states and to preparatory schools. An additional $3000 was added to this fund through the gift of D. Everett Waid. The Allied Art Medal of the Institute was awarded to Lee Lawrie for distinguished achievement in sculpture and the Craftmanship Medal to Frank Holmes for distinguished achievement in ceramic art. The initiation fee of the Institute was raised to $25 which was in addition to a yearly membership fee of $25. The membership numbered more than 3000 of the 10,000 practicing architects in the United States. Georges Gromort of Paris, Ludwig E. E. Hoffman of Vienna, and Ragnor Östberg of Stockholm were made Honorary Corresponding Members, while 15 Honorary Members and 10 elections to Fellowships were announced. Officers for 1927–28 were: President, Milton B. Medary, Philadelphia; first vice president, William Emerson, Boston; second vice president, C. Herrick Hammond, Chicago; secretary, Frank C. Baldwin, Washington; treasurer, Edwin Bergstrom, Los Angeles. The Institute publishes: The *Journal of the American Institute of Architects*, a monthly; the *Handbook on Architectural Practice*; a *Structural Service Book*; *The Significance of the Fine Arts*; the Standard Contract Forms, which are in widespread use throughout the country; and documents on the ethics of the profession. Its headquarters are located in the Octagon House, Washington, D. C. Next to Mount Vernon and Monticello the Octagon is probably the finest of the old colonial homes near Washington having historical significance. It was built in 1798 for William Tayloe, designed by William Thornton, architect, and occupied by President Madison and his wife, Dolly Madison, during 1814 and 1815, while the White House was being restored. The Treaty of Ghent which concluded the War of 1812 was ratified by President Madison in the Round Room of the Octagon on Feb. 17, 1815.

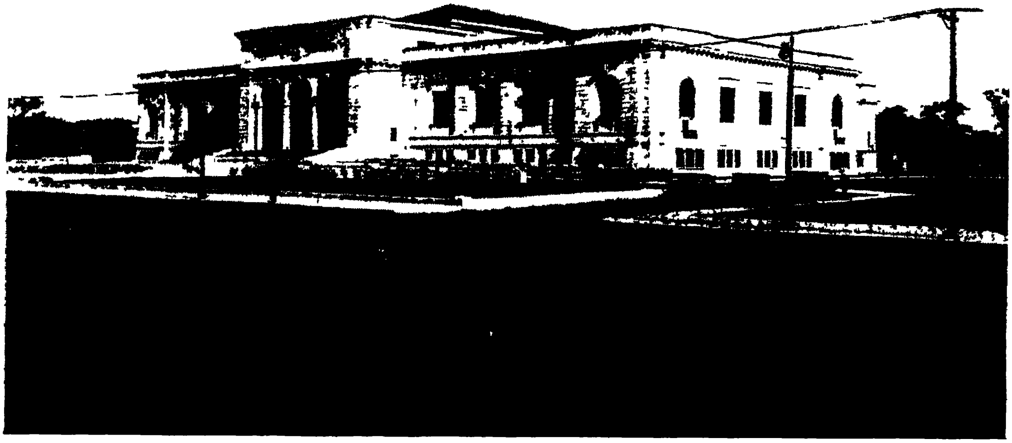
ARCHITECTURAL LEAGUE OF NEW YORK. See ART EXHIBITIONS.

ARCHITECTURE. The year 1927 witnessed a distinct falling off in the total of building, except in Germany. Nor was any great or climactic building completed which would make the year famous. Even the great competition for the League of Nations Building at Geneva petered out to a conclusion that was political rather than architectural. (See below.)

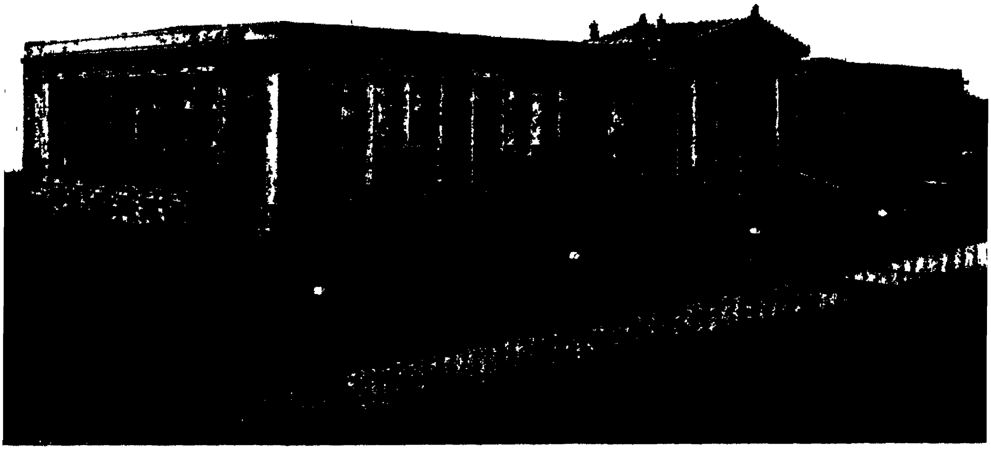
AMERICA. The sweeping construction of speculative buildings, both for offices and housing, that characterized 1926 diminished greatly in 1927, as complaints of overbuilding, particularly in the more expensive hotels and apartments, were arising, and vacancies increasing. The mortgage money market for this type of work tightened greatly, and many projects were abandoned. Certain large buildings of this type were, however, brought to a conclusion. The Savoy-Plaza Hotel by McKim, Mead and White, and the Sherry-Netherlands, by Schultze and Weaver, both in New York, on either side of 59th Street at the Plaza, were the most notable. The former is in a dignified Renaissance style, with an arcade of powerful scale at the street level, and a steep pitched roof of green tile, that adequately crowns its white brick walls. It is a design of great distinction, and forms an admirable decoration to the Plaza on which it stands. The Sherry-Netherlands is less monumental, more picturesque, with a high slim tower capped by a steep roof and a sharp gilded flèche. Together the two make a group remarkably effective as seen across Central Park.

During the construction of the Sherry-Netherlands, when the steel was almost completed, and the masonry largely finished, the scaffolding surrounding the ten upper floors caught fire in the evening and burned with terrific heat and intensity for four hours. The standpipes in the building not being completed, it was impossible for the fire department to put water on the blaze, which could only burn itself out; in the process flying embers and burning planks set many local fires and did great damage to surrounding roofs. The damage to the structure itself was estimated at nearly $250,000: unprotected steel work warped and twisted, and much brick and terra cotta was ruined. Structural members already fireproofed suffered little damage, however. The fire brought up the importance of the whole question of adequate protection of high buildings during construction. It was obvious that such fires have enormous potential danger; standpipe fire lines must be completed floor by floor as the building rises.

The Royal Hawaiian Hotel, at Honolulu, T. H., by Warren and Wetmore is the typical lavish resort hotel, with a standard plan and much rather heavy and diffuse ornament.



THE DETROIT INSTITUTE OF ARTS
PAUL P. CRET AND ZANTZINGER, BORIE AND MEDARY, ARCHITECTS



THE TENNESSEE WAR MEMORIAL AT NASHVILLE, TENNESSEE
EDWARD DOUGHERTY AND McKIM, MEAD AND WHITE, ASSOCIATED, ARCHITECTS

NOTABLE ARCHITECTURE OF 1927

Commercial building felt the stringency less than housing. In New York, the Graybar Building, by Sloan and Robertson, has a mass of considerable dignity, and much interesting detail of modernist type, particularly around the entrances, which are crowned with colossal low relief figures. The whole is, however, incoherent and not sufficiently studied, and gives evidence of that haste which is the curse of American commercial architecture. The Salmon Tower, by York and Sawyer, is distinguished only by its size. The American Book Co. Building, by Necarsulmer and Lehlbach, is an interesting adaptation of Renaissance. The two most remarkable New York office buildings of the year are those of the Equitable Trust Co., by Trowbridge and Livingston, and No. 2 Park Avenue, by Buchman & Kahn. The former has an interesting composition of forms that pyramids effectively; the latter is distinguished by its masterly modernist ornament and its daring use of brilliant color in the upper stories.

Outside New York, the Russ Building, San Francisco, by George W. Kellam, has fine mass but inadequate Gothic detail; the Niels Esperson Building at Houston, Texas, by John Esperson, is in a conventional classic style, and is one of many that make the thinking observer doubt the economic and æsthetic validity of the skyscraper in places where it is not a necessity. The Baker Building, Minneapolis, Minn., by Larson and McLaren, is an interesting composition of strong vertical lines, and the Maccabees Building at Detroit, by Albert Kahn, one of the best of recent adaptations of Gothic forms to modern commercial use.

The most interesting of the year's skyscrapers outside of New York is the American Insurance Union Citadel, at Columbus, Ohio, by C. Howard Crane and Kiehler and Dore Associated. Its style is an exceedingly free classic, and its composition an interesting combination of strength and slimness; its domical top fresh and well handled.

Of commercial buildings not in the skyscraper class, The State Bank & Trust Co., Evanston, Ill., by Childs and Smith, has lovely free classic detail of unusual grace and delicacy; inside it boasts of a beautiful ceiling in the style of Raphael or Giulio Romano. The Hollywood Terminal and Warehouse Building in Hollywood, Calif., by Morgan, Wells and Clements, is a beautiful synthesis of simple vertical lines with a decorative cresting crowned by high wireless towers. The Massachusetts Mutual Life Insurance Co.'s Home Office Building, Springfield, Mass., by Kirkham and Parlett, is an enormous building around two courts, with an entrance portico and a cupola, in a quiet colonial style, adequately if conventionally detailed.

The most remarkable building of this style is, however, that of the Fidelity Mutual Life Insurance Company in Philadelphia, by Zantzinger, Borie and Medary, with sculpture by Lee Lawrie, a most impressive and monumental whole, with detail of the greatest interest. In its modernist treatment of ideas essentially classic, it shows the influence of Goodhue's Nebraska State Capitol.

If, on the whole, speculative building showed less of interest in 1927 than before, public building showed more. The Tennessee War Memorial, at Nashville, Tenn., by Edward dougherty and McKim, Mead and White Associated, is dignified and stately with Greek Doric detail. It is a composition of much power, simple, straightforward, expressive of its purpose; it illustrates remarkably how vividly alive the classic tradition in America still remains, dominating the entire field of public building.

The Pasadena Library by Myron Hunt and H. C. Chambers shows the lighter side of this tradition. It is a building that, despite its baroque applied detail, Vignola would have delighted in; it combines charm, dignity, playfulness, welcome. It is simply planned with a lovely courtyard between wings. The Detroit Institute of Arts, by Paul Cret and Zantzinger, Borie and Medary, is classic of a quieter, more formal type, but without being cold. Effective use is made of plain wall surfaces. The interior courts are particularly pleasing, and the lighting arrangements handled with the greatest care. It is not only a lovely building in itself, but also what every museum should be, a satisfactory frame for its contents.

The new Fogg Art Museum, at Harvard University, by Coolidge, Shepley, Bulfinch and Abbott, is also a good museum as a museum. It is in a modified Georgian style, as befits the Harvard campus, and its detail is quiet and interesting. The balance of white stone and red brick is particularly pleasing.

In the educational building field, the year saw the completion of the Graduate School of Business Administration (Baker Foundation) at Harvard University by McKim, Mead and White. The completed buildings fully realized the promise of the competition drawings and form a group of quiet Georgian inspiration that has considerable variety—formality in the larger buildings and informal charm in the smaller.

Churches of the year are scarce; the two most interesting are both in California, and both are in frank concrete construction, of the type initiated last year by Pierpont and Walter S. Davis in the Episcopal Church of St. John at Los Angeles. The Wilshire Boulevard Christian Church, at Los Angeles, by Robert H. Orr, uses pre-cast ornament of Romanesque type to decorate exterior faces of cast concrete; the interior with a lovely painted wooden trussed roof is seriously compromised by the galleries. The First Congregational Church, in Oakland, Calif., by John Galen Howard and Associates, uses a similar technic but the style is simpler, more classic and formal. It has great dignity.

Three competitions for important public buildings deserve mention. The winning design for the Caddo Parish Court House, Shreveport, La., by Edward F. Nield, is a fresh and powerful composition that shows the gradual merging of classic and modernist traditions. It has an interesting wall treatment, and an entrance motive showing strong influences from Goodhue's Nebraska Capitol, with a colonnade above. The winning design for the much larger Milwaukee County Court House, Milwaukee, Wis., by Albert R. Ross of New York, is more severe, more strictly classic. The scale is large and well handled; the front shows colonnades of two different heights magnificently composed and proportioned. The plan is interesting in its arrangement of the court rooms between interior courts.

The competition for the Providence War Memorial, at Providence, R. I. was won by Clark and Arms of New York, with a circular design of quiet dignity and simplicity. The problem was a difficult one; the scale, especially, being peculiar, due to the site and the surroundings; the winning design well combines grandeur and intimacy.

In Chicago, the greatest architectural achievement of the year was the completion and dedication of the Clarence Buckingham Memorial Fountain, designed by Bennet, Parsons and Frost of Chicago, and Jacques Lambert of Paris, associated. It is one of the largest fountains of its type, with an enormous central basin, two intermediate planes of water, and a large lower pool, decorated with bronze tritons. It is an admirable composition, with the water used as the principal feature of the design, in the best traditions of French garden art.

Great Britain. The outstanding architectural event of 1927 was the completion of the great Scottish War Memorial at Edinburgh, by Sir Robert Lorimer, A.R.A. This monument was designed to compose with Stirling Castle; the entire exterior has been studied to give a perfect harmony with its surroundings. Its fresh Gothic-Scottish in general inspiration is large in scale and has in parts a richness and a bigness almost Spanish. Effectively planned, in the shape of a letter E, it has nevertheless, an interior disappointing after the simple grandeur of the exterior. The detail of the great Memorial Hall of the Regiments is modern to be sure, but hard and rather cold; the apsidal chapel, simpler and more effective. Many artists collaborated on this monument, and in general the sculpture is harmonious, though little of great imaginative quality is present. The sculpture is by Phyllis Bone, Mr. and Mrs. Meredith Williams, Douglas Strachan, Alexander Carrick, John R. Sutherland, and the stained glass by Douglas Strachan. The whole has become at once marvelously part of its site, part of the city; but it is nevertheless at times diffuse, and the interior not entirely coherent.

The Memorial Buildings in the War Cemetery at Jerusalem, in Palestine, by Sir John Burnet, R.A., are in the best vein of free modern English design. The Record Room is particularly stunning; the simplicity of its square forms, the deep recessing of the door, and the great scale of the masonry of which it is built unite to give an enormous sense of depth and power.

The New Masonic Temple in Birmingham, by Rupert Savage, is also a War Memorial. It is a simple, rather blocky design, with effective sculptured friezes by Gilbert Bayes. The whole is most satisfactory where it is simplest; the entrance with its columns, less successful than the walls that flank it.

The Charterhouse School has a new War Memorial Chapel by Sir Giles Gilbert Scott, R.A. It is, as one would expect from its designer, an impressive piece of modern Gothic; its interior distinguished by the high lancet windows running well above the spring of the vault.

The largest commercial building of the year was the much discussed Midland Bank, London, by Sir Edwin Lutyens. Its great clifflike wall is impressive, but the design becomes incoherent above the cornice, with the great central dormer and attic treatment. The offices and warehouses for Messrs. Courtauld, in London, by Sylvester Sullivan, use long thin pilasters effectively. The Underground Electric Railway Building, by Adams, Holden and Pearson is designed in receding blocks like some American buildings. It has dignified mass, but occasional trivial detail.

Among smaller buildings, the Cameo Cinema, by Robert Atkinson, deserves mention for its color, its novelty, its simplicity, and the Foord Almshouses, at Rochester, Kent, by E. Guy Dawber, A.R.A., for his skilful use of the most gracious English vernacular.

France. The reduction in the number of architectural entries at both salons bears witness to the reduction in the amount of construction for the year. The tendency towards an ever increasing modernism continued, with more or less of success. The great competition for the Church of Ste. Jeanne d'Arc, at Paris, was won by Closson, with Chifflot second. The winning design was much criticized; it has neither the traditional harmony of Romanesque or Gothic; nor, on the other hand, the structural simplicity of the best modernism, and its tower and gable are crudely connected. One of the most interesting of the designs submitted was that of A. and G. Perret, a typical Perret design in reinforced concrete, with many resemblances to their church of Ste. Thérèse at Montmagny, using their typical slim uprights and pierced and glazed concrete panels.

The alterations in the Galeries Lafayette by F. Chanat are an example of the best type of French modernism, rich, delicate, full of feeling for the materials. The treatment of the shop windows is lovely, and worthily continues the tradition of beautiful shop window treatments for which modern Paris is famous.

The Théâtre de la Michodière, by Bluysen, has a plan of amazing cleverness, with a great simple apartment house surrounding the theatre proper. This is placed with its parquet one floor below the street level, allowing interesting stair treatments, and a good light court above the auditorium. The interior of the theatre is simple, rich, and fresh, but to an American eye the use of the horseshoe plan in 1927 seems an anachronism.

The houses of A. Lurcat at Versailles show the cubical influence of Le Corbusier. They show freedom, however, and curved bay windows lessen the feeling of austere rectangularity that is the danger in this type of work.

Germany and Austria. More building was done in 1927 in Germany than ever before. Here, too, the modernist tendency was supreme. Rectangularity rules; there were even increasing experiments in the use of different materials, and the growing use of daring exterior color to give interest to the square, uncompromising forms. It is a curiously vital type of modernism, vivid even in its frequent crudities.

The Tannenberg War Memorial, at Hohenstein, East Prussia, by Walter and Krüger of Berlin, is an enormous octagonal structure with eight towers, and little relief or ornament. It is impressive by its stark size alone. More gracious is the Hamburg Health Department Building, by Hermann Höger, which like so many modern Hamburg buildings uses charmingly the varying textures and patterns to which the material, brick, lends itself. It is a simple and straightforward piece of design. Three Bavarian post offices—at Kirchenlamiz, by Erhard, at Schaftlach, by Holzdammer, and at Mainburg, by Grimm—have more feeling for local tradition; all make interesting use of the Bavarian high-pitched roofs.

The great railway station at Stuttgart, by Paul Bonatz and F. E. Scholer, begun in 1913, delayed by the war, was at last completed. It is a simply planned composition, with great arched windows, a long colonnade, and a clock tower, of coursed but rough-faced stone, extremely effective in its dignity, its simplicity, its lack of extraneous ornament. The Capitol Cinema, Berlin, by H. Poelzig, is typical of the richness of effect that can be obtained by merely geometric lines, treated in brilliant color. Of the year's industrial building, perhaps the greatest contribution of modern Germany to the world's architecture, Fritz Höger's cigarette factory at Wandsbek near Hamburg is the most interesting. The treatment of the brick buttresses between the windows is particularly novel and lovely. The laboratory building at Dohlem, Berlin, by Luckhardt and Anker, has long narrow windows set in simple concrete walls, great doors, and a good mass.

But it was in the housing field that the greatest quantity of building was done, and it is here that the cubical influence was most dominant. The repetition of continual cubical blocks becomes monotonous, though occasional group compositions of bays and flanking masses show that this type of design is not without possibilities. Particularly around Berlin the growth of suburb after suburb is amazing. And, whatever the quality of the individual house, the group planning is superb. Playground and park spaces abound; there is charm of view everywhere; planting and gardens arise side by side with the thronging houses. This growth furnishes an inspiration for suburban development everywhere; it is the only antidote for the slum. The contrast between this ordered and beautiful growth and the square miles of jerry-built shacks on unpaved morasses serving as streets that surround American cities is all too striking. Some characteristic new developments were those at Magdeburg, by Ruhl and Ganger and Willi Zobel; at Ludenscheid, by Van der Rohe, Stamm, & Oud; at Reinickendorf, by Glass and Gerschel; in Boritz, by Engelmann and Fangmeyer and by Bruno Taut.

A similar trend toward cubism, and towards the building of housing was at work in Austria; although no one project stands out above the rest. Josef Hoffman and his pupils dominate the field.

Italy. In Italy, Renaissance tradition, particularly in its more baroque types, still exerted a strong influence. This shows alike in the apartment house, Rome, by Antonio Farolfi, with its strange mixture of baroque and high Renaissance details; the Hotel degli Ambasciatori in Rome, by Piacentini and Vogt, with its heavy colossal order and its great cornice, and the Supercinema, Rome, by Foschini and Spaccarelli, with its coffered ceilings, its rich modern-Roman decorations, its incoherence. All show, however, the impingement upon this classic tradition of influences crudely modernistic; and incoherence is almost the necessary result. In the Papal Seminary at Assisi, Guiseppe Momo has wisely built in a style harmonious with the old town. The character is simple and straightforward, but the total effect is cold and bleak.

Quite different is the charming shop at Spezia, by Maulio Costa. Here it is modernism triumphant, but not the crude modernism that hurts the character of the cinema mentioned above or the cubism of Le Corbusier, but the suave and gracious richness of the French ensembliers. In its use of materials, its simplicity, its occasional neo-classicism, it is not unlike the work of Sue et Mare. It is a delicate and lovely creation.

The League of Nations Competition. This international competition proved a most disappointing fiasco. It proved only the chaos in which international taste found itself. Not a single one of the published designs revealed adequate grasp of the complicated problem presented, or the enormous possibilities inherent for tremendous and compellingly beautiful synthesis. Doctrinaire designs of all sorts abounded; the expression of theories completely absorbed and defeated any creation of beauty. Confronted with these designs the committee did the only possible thing; distributed prizes so widely that no interested country could feel itself passed over.

ARGENTINA, är′jĕn-tē′nȧ. A South American republic on the eastern coast of the southern part of the continent, consisting of 14 provinces, 10 territories and the federal district. Capital, Buenos Aires.

Area and Population. The total area of Argentina is 1,153,119 square miles. An official estimate of the population of the republic as of Dec. 31, 1925, based on the census of 1914, and the birth, death, and migration records since that time, showed a total population of 10,087,118. According to the census of 1914 (the latest official count), Argentina had 7,885,237 inhabitants. The number of immigrants in 1925 was placed at 209,873 and the number of emigrants at 131,668. Normally immigration and emigration balance due to the influx and exodus of large numbers of Italian and Spanish laborers before and after the harvests. The population of the larger cities was as follows: Buenos Aires, June, 1914, 1,575,813, and according to the census of June 1, 1925, 2,310,441; Rosario (Santa Fé), 1914, 222,592 (estimated December, 1923, 265,000); Córdoba, 1914, 134,935 (estimated, December, 1923, 156,000); La Plata, 1914, 90,436 (estimated, December, 1923, 151,000); Tucumán, 1914, 91,216; Santa Fé, 1914, 59,974; Mendoza, 1914, 58,790; Avellanda, 1914, 46,277; and Bahia Blanca, 1914, 44,113.

Education. Elementary instruction is free, secular, and compulsory for children from six to 14 years of age. According to statistics published by the Statistics and Personnel Bureau of the Argentine Republic early in 1927, there were 855 primary schools of all classes functioning in the Federal Capital, average daily attendance, 237,450; primary schools in the provinces, 8697, average daily attendance, 724,822; primary schools in the territories, 806, average daily attendance, 56,547. Attendance at the 84 normal schools of the country averaged 12,650 students during 1925, and in the practice-teaching schools, 27,312. The average daily attendance in the 44 national preparatory schools of the country was 13,437 students. The University of Buenos Aires and its annexes had an enrollment of 10,433 students; the University of La Plata, 3126; Córdoba, 2551; the University of the Litoral, 3954; and the University of Tucumán, 682.

Production. The chief pursuits in Argentina are agriculture and stock raising. About 500,000,000 acres is estimated to be devoted to these two occupations, being about equally divided between the two. Of the cultivable portion about 10,000,000 acres require irrigation. There are more than 200,000,000 acres in federal territories which are suited to stock raising, and these lands are conditionally offered free, or for sale or on lease. The 1926–27 agricultural year was one of the best ever experienced in the country. All important cereals, including wheat, corn, barley, oats, and linseed were not only exceptionally large, but of good quality as well. Wheat production, amounting to 220,827,000 bushels, was only surpassed by the 1923–24 crop which exceeded it by 26,000,000 bushels, while the corn crop, amounting to 321,000,000 bushels, was only 4,000,000 bushels short of the 1914–15 record crop. Only the oats and flaxseed crops registered declines, but the decrease in neither case was sufficient to offset the increases in other products. Improved conditions in Great Britain and Europe exerted a favorable influence upon two of the most important manufacturing industries of Argentina, meat packing and quebracho extracting. The former industry increased its killings of cattle for export from 1,231,272 head during the first half of 1926 to 1,457,454 head during the corresponding half of 1927, and of sheep packed for export from 2,178,815 to 2,220,265, the figures including solely frigorifico killings. The quebracho extracting industry increased its estimated output from 120,000 metric tons to 150,000 metric tons in the same periods. In May, 1927, the sugar-cane cutters of Tucumán, the largest sugar-producing province of Argentina, went on what proved to be a long drawn-out strike which caused a decrease of about 30 per cent in the final sugar output, but many believed it was perhaps just as well that this decrease should have taken place, in view of the fact that the sugar market of Argentina, owing to previous bumper crops, was overstocked and prices were low.

In an address in the summer of 1927, the Argentine Minister of Agriculture stated that government experts had calculated the value of Argentine industrial production to be 2,889,000,000 paper pesos, and that subtracting the value of raw materials used, estimated at 1,624,000,000 paper pesos, it was evident that the industries had added 1,265,000,000 pesos to the value of Argentine production. This is the first time that figures of this kind have been published.

Commerce. The following table on exports for 1926 was prepared by the General Bureau of Statistics for the Ministry of the Treasury:

VALUE OF EXPORTS, IN GOLD PESOS

Group of products	*1926*	*1925*
Livestock	347,648,691	386,385,023
Agricultural	410,862,575	444,666,487
Forestal	19,217,520	21,628,639
Other products	14,449,736	15,249,783
Total	792,178,522	867,929,932

As may be noted, though the value is less, the total volume of products exported in 1926 was greater than that of 1925, due to increase in grain exports, as shown below:

QUANTITIES EXPORTED, IN TONS

Group of products	*1926*	*1925*
Livestock	1,517,366	1,489,744
Agricultural	10,021,287	7,900,934
Forestal	313,563	381,880
Other products	422,652	475,455
Total	12,274,868	10,248,013

According to the United States Bureau of Foreign and Domestic Commerce, large crops and a brisk demand on the part of Europe for all Argentine products brought about an exceptionally large export movement in the first half of 1927. Exports almost doubled—from 6,444,327 metric tons during the first half of 1926 to 10,571,485 metric tons during the corresponding half of 1927. Although all products contributed to this increase, the greatest contribution, 3,433,000 metric tons, was made by the wheat and corn shipments. All Argentine products, however, were sold at low export prices, except livestock, hides, dairy products, and quebracho extract, and, consequently, although their export tonnage increased 64 per cent, their value, which amounted to 562,139,891 gold pesos, increased only 25.9 per cent.

In spite of this heavy export movement, imports of foreign merchandise during the first half of 1927, which amounted to 394,247,766 gold pesos, were some 33,000,000 gold pesos less than those of the corresponding period of 1926. Imports from the United States increased 9.4 per cent, while those from Great Britain decreased 4.2 per cent. Two factors were largely responsible for this decrease in imports—the fact that 1926 was a bad year, as a result of which many farmers, ranchmen, and small merchants in the interior went into debt, and the steady appreciation of the peso exchange which made many importers reluctant to buy in the expectation that the peso would go still higher. These deterrents to trade, however, were removed, the former by the good crops in 1927 and the latter as a result of the reopening of the Caja de Conversión on Aug. 27, 1927, and the restoration of the gold standard. Consequently, imports of foreign merchandise may be expected once more to resume their normal development.

Finance. In considering the estimates for 1927 the executive proposed that the 1926 budget should apply also to the following year. The Committee of Budget and Finance of the Chamber of Deputies, however, suggested outlays in excess of the estimates for 1926. In the committee's budget the expenditures were calculated at 650,000,000 paper pesos, while the revenues were estimated at 625,000,000 pesos. Despite the certainty of a 25,000,000 pesos deficit, the president, after discussing the matter at length with his cabinet, decided to accept the estimates of the committee, hoping to cover the deficit from increased income from export taxes, in view of the large crop movement expected to occur in the early part of 1927. Congress was inclined to increase these amounts to 681,290,285 pesos (to which should be added the public works budget of 115,548,500 pesos, subsidies amounting to 27,323,875 pesos, and supplementary credits to 42,958,490 pesos, making a grand total of about 867,121,742 pesos, or 115,000,000 pesos more than in 1926). But it was finally determined, after the president had pointed out the dangers of further increasing the government's disbursements, that ordinary expenditures of 650,000,000 pesos should be authorized, and 23,000,000 pesos of additional expenditures should be covered by receipts from the national lottery.

In addition to these "ordinary" expenditures, amounting to 673,000,000 pesos, the budget law also included authorizations to issue 150,000,000 pesos of internal 6 per cent public works bonds and 142,000,000 pesos of 6 per cent bonds for the consolidation of part of the indebtedness of the State railways. Also, provision was made for the issue of 25,000,000 pesos of 5½ per cent internal bonds to be entitled the Internal Consolidation Loan of 1927, to eliminate the supplementary credits and other unpaid obligations carried over from previous years. In addition to all these, there was still in effect the law for the construction of sanitary works, which contemplated an expenditure of 195,000,000 pesos during 1926 to 1928. In view of the tremendous outlays anticipated it appeared improbable that Argentina could balance its budget during 1927 without resorting to further loans. The total public debt of the country according to the president's message of May, 1927, was 2,239,847,000 paper pesos.

COMMUNICATIONS. The total receipts of all Argentine railways increased from 250,000,000 gold pesos in 1925 to 261,500,000 gold pesos in 1926, and total expenditures rose from 179,300,000 to 184,700,000 gold pesos. Profits increased from 71,200,000 to 76,800,000 gold pesos. Passenger traffic expanded to 145,000,000, or 5,000,000 more than in 1925, and freight increased by 2,000,000 tons to 45,500,000 tons. The total length of all railways at the beginning of 1927 had increased to 38,231 kilometers. The principal branches brought into operation were as follows: From Tintina to Lilo Viejo, 47 kilometers; San Juan to Jachal, 23; on the Central Córdoba Railway, from Arcadia to Gastona, 9; on the Southern Railway, from San Jacinto to La Providencia and to Cerro Aguila, 7 and 5 kilometers, respectively; on the Argentine Great Western, the branch from Espejo to Costa Araujo, 55; and the extension of the branch from Villa Atuel, 12.

The State railways had a better year in 1926 than in the previous year, the total receipts amounting to 51,387,000 paper pesos, while expenses were 51,338,000, thus showing a net profit of 49,000 paper pesos. The increase in total receipts amounted to 8 per cent over 1925. There was practically no new construction on the lines of the State railways in 1926, developments being limited to the construction of about 11 kilometers from Embaracación to Yacuiba and to the construction of bridges and other smaller improvements on other small lines.

According to the Pan American Union *Bulletin*, for July, 1927, representatives of the Buenos Aires and Pacific, the Buenos Aires Great Southern, the Buenos Aires Great Western, the Central Argentine, the Córdoba Central, the Compañía General, the Santa Fé, the Central Buenos Aires, the Midland, and the Rosario-Puerto Belgrano Railways met in conference with the President of the Republic in the latter part of March, 1927, to consider plans for the colonization of now unoccupied lands, so that the wealth of the nation may be developed. The Ministers of Agriculture and Public Works, who also spoke at this conference, promised their departmental coöperation. President Alvear expressed his satisfaction at the agreement reached and promised governmental aid for the plan. The State railways were not included in this agreement since they already were under a special colonization law.

The basis of the scheme contains the following points:

> The consortium will be organized with the legal status of a commercial company, maintaining direct relations with the Argentine Government and foreign governments from which immigrants come. Each railway company will superintend the settlement of land on its own lines but shall seek only to cover the cost of the land and other appurtenances with a 10 per cent margin for incidental losses. The capital of the consortium will be subscribed by the railways pro rata according to their mileage. Settlers will be given time to pay for land and services at the rate of 7 per cent interest and 1 per cent amortization. If foreign families have no capital for the purchase of animals, implements, etc., during the first year, the companies will advance funds. The consortium will organize cooperative societies in each colony for the sale of provisions. The consortium is to exist for 10 years from the date of signature of its act of association.

GOVERNMENT. The executive power is vested in a president elected for six years, and the legislative power in a national congress, comprising a senate of 30 members elected for nine years, and a chamber of deputies of 158 members elected for four years by the people at the ratio of one deputy for every 49,000 inhabitants (census of 1914). One-third of the senate retires every three years and one-half the chamber every two years. The cabinet is appointed by and under the direction of the president, and comprises the departments of foreign affairs, finance, interior, justice and public instruction, war, agriculture, marine, and public works. President in 1927, Dr. Marcelo T. de Alvear (assumed office, Oct. 12, 1922); vice-president, Dr. Elpidio González.

HISTORY. The year was comparatively uneventful for Argentina. The Sacco-Vanzetti case (q.v.) caused a tremendous amount of interest and resulted in several strikes of short duration as a means of protest against the actions of the State of Massachusetts. Some labor organization delivered notes to the American representatives in Argentina asking them to protest against the action of Governor Fuller in denying a new trial.

The regular session of Congress opened in May, and, in his address, President Alvear commented upon the prosperous condition of the country along economic and financial lines. He stated that the citizens should be assured of an impartial and fair election for the presidency in the fall. On May 25, the entire country celebrated with due ceremony the 125th anniversary of the beginning of her struggle for independence. On the same day France and Great Britain raised the rank of their legations in Argentina to embassies, a position held only by the Spanish and United States representatives heretofore. The session of congress closed on September 30 without enacting any legislation of sufficient importance to note here.

A slight flurry between the United States and Argentina occurred in the fall over the question of the enforcement of certain provisions of the Fordney-McCumber tariff act. For some time there was a feeling of friction and it had not entirely died down by the time the year closed. It bears a striking similiarity to the dispute between France and the United States over tariff difficulties. The American Tariff Commission planned to send an investigation committee to Argentina to study the cost of production of corn and flaxseed in that country in order to adjust the tariff duty in accordance with the flexible provisions of the Fordney act. The Argentine Ambassador to the United States, M. Pueyrredon, strongly intimated that such action would be decidedly unwelcome. No mention of actual prevention of the investigation was made, but the insinuation was perfectly clear, and, coupled with the strong and active anti-American feeling engendered by the Sacco-Vanzetti case, determined the government to rescind the sailing orders of the investigating committee. The action of the Argentine authorities was quite obviously caused by the widespread dissatisfaction in that country with the manner in which its products were kept out of the United States, not only by the tariff but because of the prevalence of certain diseases among Argentine cattle. During the session of the legislature many measures were proposed to retaliate against the United States, either in the form of a change in Argentine duties or in the form of a subsidy to those exporters who had to pay duties on goods entering the United States. One measure went so far as to propose a separate tariff schedule on American goods, considerably higher than that on all other nations. Nothing came of the proposals, however, and, although no overt act occurred, the relations between the two countries were considerably strained at the end of the year.

ARIZONA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 334,162. The estimated population on July 1, 1927, was 459,000. The capital is Phoenix.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	202,000	682,000[a]	$9,797,000
	1926	181,000	647,000[a]	8,399,000
Wheat, winter	1927	58,000	1,450,000	1,958,000
	1926	38,000	950,000	1,235,000
Barley	1927	20,000	700,000	525,000
	1926	25,000	875,000	744,000
Grain sorghums	1927	60,000	1,800,000	1,350,000
	1926	40,000	1,240,000	744,000

[a] tons.

MINERAL PRODUCTION. Arizona with a total mineral production of $114,202,670 in 1925, rose to 11th in rank among the States as a mineral producer, and in 1926 slightly improved the total value of its production of the metals gold, silver, copper, lead and zinc, forming the chief part of its mineral output. Of these five metals, the production in 1926 was, in value, $113,536,288; in 1925, $113,138,198. Of copper alone, the production was, in 1926, 723,296,051 pounds; in 1925, 713,355,129 pounds, recovered or recoverable metal. Gold production was, in troy ounces, 234,011 in 1926 and in 1925, 201,741; silver production, in 1926, 7,381,027 troy ounces and in 1925, 7,257,068. Lead production was, in 1926, 23,258,274 pounds and in 1925, 23,876,017 pounds. That of zinc was in 1926, 12,946,423 and in 1925, 7,332,116 pounds. Average value of metals produced in 1926 was, save for gold, slightly lower by the unit than in 1925: gold, $20.672 an ounce; silver, $0.624 an ounce; copper, $0.14 a pound; lead, $0.08 a pound; zinc, $0.075 a pound. Stone, lime, clay products and other minor items of mineral production brought the total mineral production of the State in 1925 to an estimated value of $114,202,670.

The value of the gold, silver, copper, lead, and zinc, produced by mines in Arizona in 1927 was estimated by the U. S. Bureau of Mines at $100,027,100, a decrease from $113,536,288 in 1926. The decrease was both in quantity and in value, the latter being due to the drop in the average price of silver, copper, lead and zinc. Copper production was restricted at nearly all the large copper mines during the year, but Arizona still retained its place as the leading copper producer of the United States and was also first in the combined value of the five metals. The gold output decreased to about $4,185,800 and the silver output was about 613,000 ounces, with a value of $3,863,000. The copper output in 1927 was about 696,243,000 pounds, with a value of $90,511,600. Lead decreased to about 19,825,000 pounds, valued at about $1,342,200. The output of zinc was 1,984,000 pounds with a value of about $124,600, this large decrease being due to the curtailment of lead-zinc shipments by several large producers.

FINANCE. As reported by the United States Department of Commerce, payments for the maintenance and operation of the general departments of the State in the year ending June 30, 1926, were $5,471,226; their rate per capita was $13.06. They included $1,775,857 for education, apportioned among subdivisions of the State. Interest payments attained a total of $120,075; permanent improvement outlays, of $2,229,441. These brought the aggregate of State expenditure to $7,820,742. Of this, $2,346,754 was for highways; $816,861 being for maintenance and $1,529,893 for construction. Revenue receipts were $7,683,542; or per capita, $18.34. Of their total, property and special taxes yielded 65.2 per cent, attaining a per capita rate of $11.96. Earnings of departments and compensation paid the State for officials' services furnished 4.2 per cent of the revenue; 14.4 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sale tax. Net direct State indebtedness on June 30, 1926, was nil; there was, however, a contingent debt, formed by the obligations that counties and cities had formed in the days of territorial government. Property that was subject to ad valorem taxation bore a total valuation of $643,595,819. State taxes levied were $5,073,507, or $12.11 per capita.

TRANSPORTATION. The total mileage of railroad line under operation Dec. 31, 1926, was 2496.52. In 1927 the new construction totaled 23.66 miles of second track.

EDUCATION. Through conference with officials of the American Legion the State Board of Education sought to create a joint programme of health education to apply in all schools within the State.

CHARITIES AND CORRECTIONS. Under the control of the Board of Directors of State institutions, consisting of the Governor, the State Treasurer and one appointed citizen member, were the following State charitable and penal institutions: State Hospital for the Insane, with a population in 1927 of about 800; State Prison, 500; State Industrial Schools, 90; Pioneers' Home, 125. The Board had also charge of a State Free Employment Bureau. As reported by the United States Department of Commerce, patients in the mental hospital of the State on Jan. 1, 1927, numbered 684; admittances to State prison in 1926 numbered 256.

LEGISLATION. The regular session of the sixth Arizona Legislature convened January 10, and adjourned April 20, after members had sat several days beyond the time for which the law allowed payment for their services. An act was passed for the purpose of revoking the portion of the State constitution in virtue of which the State had recognized the authority of the Federal Government over public lands and waters and had relinquished its power to tax these. The act called a special election for May 31, to ratify an amendment of the State constitution to the above effect. The immediate purpose of the proposed amendment was to reassert the right of the State to make its own disposal of the water rights within Arizona territory at the site of the proposed Boulder Dam. A measure providing for highway construction in the ensuing period was passed but was vetoed by Governor Hunt as infringing on the executive privilege. The bill failed of passage over his veto, and the adjournment left the State without any highway programme. A bill to restrict the issue of search warrants in prohibition cases failed of passage in the lower house. By enactment the Legislature required that half of the finds in the excavations conducted at the Casa Grande ruins by the Southwest Museum of Los Angeles should be presented to the State Museum.

POLITICAL AND OTHER EVENTS. Representatives of the State took part during the year in a succession of interstate conferences designed to bring about an agreement on the disposal of the water of the Colorado River. In a meeting in April with legislative committees of California and Nevada, the Arizona legislative committee insisted on the State's claim to one-half of the water rights in the lower river, and on the right to receive revenue on hydro-electric power generated from water of the State and sold outside it. Voters of the State, May 31, confirmed by ballot the alteration of the State constitution, proposed by the Legislature, repealing the cession of rights in the Colorado River to the United States and the exemption of Federal works from taxation. At a conference of the River States held in Denver in September the Arizona delegation maintained its previous attitude in the main, inclining to yield somewhat to claims of Nevada, but opposing those of California. A decision of the State Supreme Court, October 23, removed from the administration of Secretary of State Kerby and placed in the hands of the newly created State Highway Commission the operation of the certificate of title act, which the Secretary had claimed authority to administer. Steps were taken toward the development of a connecting highway between the Old Trails Highway and the Grand Canyon. The general manager of the United Verde Copper Company announced in November that this company had under way plans to ship via Los Angeles harbor, and already had shipped partly by this route. Hostilities between the Mexican government and the Yaqui Indians in adjacent territory in the spring necessitated activity on the part of the Federal border patrol, which intercepted fugitives crossing the frontier. A band of 33 Yaquis entered the State to escape Mexican soldiers, and surrendered near Nogales May 7. Suit was brought in the United States court at Tucson, December 7, against 900 defendants, a previous complaint having been enlarged to include more defendants, on behalf of priority rights of Pima and Apache Indians to use of the water of the Gila River stored in the Coolidge Dam.

OFFICERS. Governor, G. W. P. Hunt; Secretary of State, James H. Kerby; Treasurer, J. C. Callaghan; Auditor, Ana Frohmiller; Attorney-General, John W. Murphy; State Superintendent of Public Instruction, C. O. Case.

JUDICIARY. Supreme Court: Chief Justice, A. G. McAllister; Associate Justices, Henry D. Ross, Alfred C. Lockwood.

ARIZONA, UNIVERSITY OF. A coeducational institution of higher education at Tucson, Arizona; founded in 1885. The 1927 autumn enrollment totaled 1758, and the summer session of 1927 had a registration of 274 students. The number of members on the faculty in the autumn term of 1927 was 161. The University receives Federal and State support. The endowment fund amounted to $10,000, and the income for the year to $1,311,851.92. The library contained approximately 65,000 volumes. President, Byron Cummings, A.M., LL.D., Sc.D.

ARKANSAS. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,752,204. The estimated population on July 1, 1927, was 1,923,000. The capital is Little Rock.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	1,925,000	36,575,000	$31,820,000
	1926	2,026,000	41,583,000	33,226,000
Wheat, winter	1927	28,000	322,000	402,000
	1926	30,000	405,000	518,000
Cotton	1927	3,045,000	980,000[a]	98,980,000
	1926	3,790,000	1,548,000[a]	85,140,000
Rice	1927	175,000	7,438,000	6,694,000
	1926	199,000	10,547,000	10,547,000
Hay	1927	789,000	876,000[b]	11,709,000
	1926	708,000	800,000[b]	12,268,000
Oats	1927	207,000	4,140,000	2,401,000
	1926	243,000	5,346,000	2,780,000
Potatoes	1927	29,000	1,972,000	2,958,000
	1926	32,000	1,920,000	3,552,000
Sweet potatoes	1927	38,000	4,408,000	3,526,000
	1926	34,000	3,672,000	3,488,000
Sorghum sirup	1927	44,000	3,520,000[c]	2,992,000
	1926	38,000	2,926,000[c]	2,487,000

[a] bales, [b] tons, [c] gallons.

MINERAL PRODUCTION. Petroleum, in which the State ranked fourth in 1925 in respect of the total value of the product, yielded in 1926 59,229,000 barrels, as against 77,398,000 barrels in 1925, in which year the Smackover field attained its greatest activity. The product of 1926 had a total value of $69,600,000; that of 1925, $68,880,000. Coal production showed an increase, being for 1926, 1,459,017 net tons, as against 1,220,039 tons in 1925; in value, $5,497,000 in 1926 and $4,829,000 in 1925. Of natural gas, 41,878,000 M cubic feet were produced in 1925, the latest year reported; in 1924, 36,616,000 M cubic feet. The value totals were, for 1925, $5,394,000; for 1924, $4,908,000. Gasoline from natural gas was produced in the quantity of 19,686,000 gallons in 1925 and 17,533,000 gallons in 1924; and to the value of $2,420,000 in 1925 and $1,784,000 in 1924. Producing the bulk of domestic bauxite, the State increased its total of this product to 371,570 long tons for 1926, from 296,320 tons for 1925; value totals were in 1926, $2,298,550; in 1925, $1,878,450. Stone, sand and gravel and clay production continued active. The State attained a total mineral production valued at

$87,185,532 for 1925 and at $61,748,999 for 1924.

Finance. As reported by the United States Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $11,959,106; their rate per capita was $6.32. They included $3,962,262 apportioned for education. With the added totals of $124,367 in interest payments and $7,243,363 in permanent improvement outlays, the aggregate of State payments attained $19,326,836. Of this, $8,967,458 was for highways; $2,116,840 being for maintenance and $6,850,618 for construction. Revenue receipts were $20,190,877; or per capita, $10.68. Of this total, property and special taxes yielded 35.7 per cent; their per capita rate was $3.81. Earnings of the departments and compensation paid the State for officials' services supplied 5.5 per cent of revenue; the sale of licenses, chiefly on incorporated companies and on motor vehicles, and a tax on gasoline sales supplied 44.3 per cent. Net State indebtedness on June 30, 1926, was $3,116,158, or $1.65 per capita. Property subject to ad valorem taxation had a value of $604,832,174. State taxes levied were $5,262,040, or $2.78 per capita.

Transportation. The total mileage of railway line at the end of 1926 was 4888.04. During 1927 two companies built a total of 28.77 miles of track of which 10.07 miles was first track.

Education. The Legislature passed an equalizing fund bill, which according to State Superintendent J. P. Womack in the *Journal* of the National Education Association provided for payments from State funds to school districts that, having voted an 18 mill school tax, were yet unable to meet minimum standards of efficiency. The Legislature also provided a revolving fund to assist rural schools and school building projects. The school population of the State was estimated in 1926 at 626,730, of whom 470,517 were white and 156,213 were Negro. There were enrolled in the public schools in the scholastic year 1925–1926, 382,172 white pupils, and 114,755 Negroes. Of these 349,601 whites and 112,754 Negroes were in the common schools; in high schools, 32,571 whites and 2181 Negroes. There was expended for current operating expense of the public schools $10,536,475; for outlays, $3,429,390; for debt service, $1,553,599; total, $15,519,464. Salaries averaged, in high schools, $1066; in elementary schools, $610; in the schools as a whole, $669.

Charities and Corrections. The Board of Charities and Corrections, authorized by act of 1925, is the central State welfare organization. It consisted in 1927 of a chairman appointed by the Governor and of two ex-officio members. Under its control were the chief State institutions of welfare. These were the Arkansas Confederate Soldiers' Home, at Sweet Home, near Little Rock; State Tuberculosis Sanatorium, Booneville; State Tuberculosis Sanatorium for Negroes, authorized in 1923 but not yet in operation; State Hospital for Nervous Diseases, Little Rock; State Hospital Dairy Farm, North Little Rock; State General Hospital, authorized but not yet erected; Boys' Industrial School, near Pine Bluff; Girls' Industrial School, Alexander; State Farm for Women, Jacksonville; State Penitentiary, Little Rock, with convict farms at Cummins and Tucker. The Board acted as a parole authority for the penal and reform institutions. The Board also had partial control of the Arkansas School for the Blind, and Arkansas School for the Deaf, both at Little Rock.

Legislation. The Legislature convened in regular biennial session Jan. 10, 1927. It enacted the Crawford-Purkins highway bill, signed by Governor Martineau February 4. This measure had for its purpose the removal of the burden of highway improvement from road districts supported by property taxation. According to Governor Martineau, the law provided means to pay the bonds of the road improvement districts and to construct a complete system of roads. The State was authorized to employ about $6,500,000 annually out of automobile and gasoline taxes to pay principal and interest on these bonds. It was authorized to issue $52,000,000 of its own notes at the rate of $13,000,000 a year for the construction of paved highways and to pledge thereon the proceeds of gasoline, motor oil and automobile taxes. A Note Board was created to effect the sale of the certificates. A measure was enacted creating a State Tax Commission of three members, to be appointed by the Governor for terms of eight years, and relieving the State Railroad Commission of the duty of assessing public utilities for purposes of taxation. There was passed also a State income tax bill taxing incomes in excess of $1500 for single persons and $2500 for married ones, with exemptions for $400 for each child. The tax applied to the year 1926 and thereafter. Its purpose was declared to be the provision of funds for equalization of schooling. (See *Education*, above). An anti-evolution bill failed of passage. The Legislature adjourned March 10.

Political and Other Events. The floods prevalent in the river lands of the lower Mississippi basin afflicted Arkansas among other States. Inundations from levee breaks began at the end of March. Outside the Texarkana district, where some flooding also occurred, 4,064,480 acres within the State had been inundated, according to information from Federal agricultural experts, published April 25. Floods along the Arkansas River extended across the entire State from Fort Smith to the river mouth. Cotton, sweet potato and rice lands along the White River were overflowed. Several long staple cotton counties along the Mississippi suffered likewise, and the Ouachita and Red Rivers did much damage. Banking aid for the rehabilitation credit needed by farmers and for the means to provide late planting after the waters subsided was organized with Federal support. According to a compilation made by the State Flood Commission in June, Arkansas and Mississippi levee districts had an outstanding indebtedness of some $50,000,000, which it was hoped that the United States, in adopting a plan of adequate Federal flood control, would take over. An order of the State Industrial Welfare Commission setting a minimum wage of $1 a day for inexperienced and of $1.50 a day for experienced women employees was enjoined by a Federal district court, and was declared invalid by the United States Supreme Court, January 17, on the ground that it would deprive the employer of property without due process of law. The State Supreme Court voided on March 14 the land ownership statute of 1925 that forbade ownership of land by aliens who had not filed application for citizenship. A company was formed to open a large cotton mill at Magnolia, in March.

OFFICERS. Governor, John E. Martineau; Secretary of State, J. B. Higgins; State Treasurer, Ralph Koonce; Auditor, J. C. Cone; Attorney-General, H. W. Applegate; Commissioner of State Lands, Highways and Improvements, Dwight H. Blackwood; Commissioner of Mines, Manufactures and Agriculture, William N. Wilkes; Superintendent of Public Instruction, J. P. Womack.

JUDICIARY. Chief Justice, Jesse C. Hart; Associate Justices, Carroll D. Wood; Frank G. Smith; T. H. Humphreys; William F. Kirby; Thomas M. Mehaffy; E. L. McHaney.

ARKANSAS, UNIVERSITY OF. A coeducational State institution at Fayetteville, Ark.; founded in 1871; comprising colleges of arts and sciences, education, engineering, agriculture (including an experiment station), and schools of law, business administration and medicine, the last named being at Little Rock. In the autumn of 1927 the enrollment was about 1900 and for the summer school of 1927 it was 784. The number of faculty members, including administrative officers, was 190 for the year 1927–28. The number of volumes in the library was approximately 80,000. The productive funds amounted to $132,000, and the income for the year 1927–28 was approximately $1,700,000. Two new buildings for the college of engineering and the college of agriculture, costing, with equipment, more than $700,000 were occupied by the respective colleges at the opening of the autumn term. The new Engineering Hall housed the departments of civil, electrical and mechanical engineering, drawing and architecture, and provided laboratories, drafting rooms and class rooms for those departments, as well as general offices for the college and the engineering experiment station. A graduate school with a dean in charge was established in September, 1927. President, John Clinton Futrall, M.A., LL.D.

ARMAMENTS, LIMITATION OF; CONFERENCE OF 1927. See NAVAL PROGRESS.

ARMENIA. A term applied since April 2, 1921, to the new state known as the Socialist Soviet Republic of Armenia, or the Republic of Erivan. Before the World War, Armenia sometimes indicated the Armenian territories of the former Turkish Empire and sometimes the entire region in which the dominant race element was Armenian. In the former Turkish Empire the Armenians constituted about 38.9 per cent of the population in the following vilayets: Erzerum, Bitlis, Kharput, Diarbekr, Sivas, and Van; being in the minority in the first five and a majority in the last-named. The present number of Armenians in the Turkish Republic is unknown, a large part of the Armenian element having disappeared from Anatolia during the War and afterwards as a result of massacres, deportations, and migrations. The population of the former Turkish Empire known as Armenia and Kurdistan was given at 2,470,900.

SOCIALIST SOVIET REPUBLIC OF ARMENIA. This republic comprises the southeast frontier region of Transcaucasia, which formerly belonged to the Russian Empire, but which in November, 1917, split off from Bolshevik Russia. The whole Transcaucasian region comprised the three main peoples, Armenians, Georgians, and Tartars, and was at first constituted into a federal republic which lasted only a few weeks, when it was dissolved into three component parts, the Armenian Republic, Georgia, and Azerbaijan, each of which declared its independence. Although the Armenian Republic was recognized by the Allies in 1920, it soon fell under the sway of the Bolsheviks and was proclaimed a Soviet republic on Apr. 2, 1920, and later joined the new Russian federated state. The area is 11,680 square miles and the population in 1926 was 867,071, 85 per cent of which was Armenian. In 1925, 81,000 pupils attended the schools of the republic.

The greater part of the population is engaged in agriculture, wheat, rice, licorice root, tobacco, cotton, and wine being the leading products. The area sown in 1925 was 255,900 dessiatines which represents the pre-war area under cultivation. The cultivation of cotton, which fell away to almost nothing after the Bolshevist Revolution, is gradually assuming its place of importance in the agricultural activities, more than 15,000 dessiatines being devoted to its culture in 1925. The mining of copper is also a leading industry, 1500 persons being engaged in this activity. Having no seaports, the country is almost entirely cut off from the outside world, being compelled to depend for its communications on the single Transcaucasian Railway which passes through its territory from Batum to Baku. The capital is Erivan, with a population of about 90,000.

ARMIES. See MILITARY PROGRESS.

ARMOUR, JONATHAN OGDEN. American meat packer and capitalist, died at London, England, August 16. He was born at Milwaukee, Wis., Nov. 11, 1863, the son of Philip Danforth Armour. He studied at Yale, but did not graduate, returning to Chicago to assist his father, and within a very short time taking a place of prominence in the control of vast packing industries. After his father's death in 1901 he not only directed the business, but extended it so that from an annual volume of $182,000,000 it increased to more than $1,000,000,000. Additional plants were built in various parts of the country, to decrease the cost of long hauls by train, and numerous distributing stations were established. Not only in the United States but in Argentina, Mr. Armour extended the business, and at the close of his active management in 1922 there were five Armour plants south of the equator, fifteen in the United States and one in Canada. In 1911 Mr. Armour was indicted with other Chicago packers for alleged violation of the Sherman anti-trust law, and after a trial in a Federal court, with no defense, the jury brought in a verdict of not guilty. In addition to his packing activities, Mr. Armour was a large operator on the Chicago Board of Trade and at times a conspicuous speculator. The Armour interests suffered in the economic depression that followed the World War, and in 1923 Mr. Armour relinquished the presidency of Armour & Company to become chairman of the board of directors, the active control of the packing property passing into the hands of a group of three bankers who held 51 per cent of the stock. Although Mr. Armour to some extent recovered his financial independence, the large firm of Armour & Company ceased after 1925 to be a family affair. Mr. Armour was also active in the Armour Grain Corporation, which had been organized by his father in 1890 and had figured in many of his speculative activities. During the latter part of its career this company achieved considerable notoriety, and in April, 1926, it liquidated and withdrew from the grain trade. Mr. Armour at one time was said to be the largest owner of bank stock in Chicago, but in 1923 he was forced to sell many of his holdings, including those of the Continental and Commercial Bank of Chicago, of which he was a director. In 1921 he resigned as a director of the National City Bank of New York and in the latter part of his life gradually gave up his banking connections. He developed at Lake Forest, Ill., a model farm which was valued at $5,000,000, but this enterprise, of which he was greatly fond, he was forced to relinquish. He was a director in many railways and other industrial enterprises. He was the author of *The Packers and the People* (1906).

ARRHENIUS, Svante. Swedish physical chemist, professor of chemistry at Stockholm University, and Nobel Prize winner for chemistry in 1903, died at Stockholm, October 2. He was born at Wijk, near Upsala, Sweden, Feb. 19, 1859, the son of a land steward, and was educated at the Cathedral School and the University of Upsala, receiving from the latter his degree of Ph.D. in 1884. His early researches in the field of electrical conductivity and its relation to chemical activity were rather lightly esteemed by the professors at Upsala but secured recognition abroad. After a brief period of teaching at Upsala he received a traveling scholarship from the Swedish Academy of Sciences; this enabled him to study abroad, and in 1886–90 he worked in the laboratories of W. Ostwald at Riga and Leipzig, of Kohlrausch at Wurtzburg, of Van t'Hoff at Amsterdam, and of Boltzmann at Graz. During these *Wanderjahre* his theory of electrolytic dissociation put forward in 1887 secured for Arrhenius an established position in international science. Refusing an invitation to settle at Giessen Arrhenius returned to Sweden in 1891. He became lecturer and later professor of physics in the newly established Technical High School at Stockholm established in connection with the university. He served as rector of the University from 1897 to 1902. In 1905 he was invited to the University of Berlin, but declined and in the same year he was appointed director of the Nobel Institute at Stockholm, a position he held at the time of his death. In 1902 he was awarded the Davy Medal by the Royal Society of London and in 1914 he delivered the Faraday lecture on the invitation of the Chemical Society, being a foreign member of both of these organizations as well as of the Physical Society and the Royal Institution. He received honorary degrees from the Universities of Oxford, Cambridge, Birmingham and Edinburgh in Great Britain, and from Heidelberg, Groningen, Oslo and Leipzig in Europe. Arrhenius is considered one of the founders of the science of modern physical chemistry due to his theory of electrolytic dissociation derived from his original ideas on the condition of dissolved electrolytes. He had studied the electrical conductivity of a number of substances in dilute aqueous solutions and in 1883 he reached the conclusion that in regard to the conduction of the electric current only part of the electrolyte was to be regarded as "active," this proportion increasing on dilution, and that there was a parallelism between the "strength" of an acid and its electrical conductivity. This work was extended and elaborated and in 1887 he published in the *Zeitschrift für Physikalische Chemie* his memorable paper, "Über die Dissociation der in Wasser Gelösten Stoffe." This work had the approval of both Van't Hoff and Ostwald and furnished a fertile field for discussion and further experiments. Arrhenius and his colleagues continued their researches at the Nobel Institute and he also worked on quantitative physicochemical lines on physiological and biological problems. He studied and wrote on serum therapy and the relation of toxins and antitoxins.

He was deeply interested in cosmogony also, and wrote on such subjects as the nature of planetary atmospheres, the genesis of the solar system, the origin of the aurora, the influence of carbon dioxide on the temperature of the earth, the function of light pressure, and the periodicity of natural phenomena, in a fresh and interesting way as summarized in his excellent popular works. His published works, originally written in Swedish, were translated into other languages, and included such titles as: *Electro-chemistry* (1901); *Immuno-chemistry* (1906); *Theories of Chemistry* (1906); *Worlds in the Making* (1908); *Life of the Universe* (1909); *Quantitative Laws in Biological Chemistry* (1915); *The Destinies of the Stars* (1918); and *Chemistry and Modern Life* (1919).

ARSENIC. In 1927 the United States produced about 10,310 tons of arsenic and imported the following approximate amounts from the countries named: Mexico, 8942 tons; Canada, 1902 tons; Japan, 938 tons; Europe, 371 tons: making a total supply available in the United States during the year of about 22,463 tons.

This may be compared with a production in 1926 of approximately 6221 tons and imports of 7730 tons, and in 1925 of 10,997 tons production and imports of 9316 tons. These figures are of interest when it is stated that in 1911 the United States produced only about 3000 tons and prior to 1901 depended mainly upon England and Germany for its material. In 1927 a large proportion of the arsenic was used for making calcium arsenate, used by cotton planters against the boll weevil, while lead arsenate, paris green, bordeaux, and other mixtures of arsenic for weed killers, cattle dip, and glass figured extensively. It was estimated that in 1927 about 75 per cent of the white arsenic produced in the United States was used for insecticides, 15 per cent by glass manufacturers, and 8 per cent in the manufacture of sodium arsenate. Arsenic for use in wood preservation was being extensively tested in the Forest Products Laboratory at Madison, Wis., and it was believed that arsenical compounds would act advantageously to protect timber not only against decay but against insects of various kinds. (For danger from spraying arsenic, see Horticulture.)

ART EXHIBITIONS. The "Art Season" tends each year to become shorter and more and more crowded, and the continuous flow of famous masterpieces from European collections to the United States creates constant and increasing opportunities to view each winter the work of artists of greatest importance from all schools and nationalities, the Primitives to the latest of the moderns. Indeed, the interest of the serious collector appears to be concentrated on these two schools, to the partial exclusion, for the moment, of those old favorites, the Dutch seventeenth century masters. Examples of eighteenth century English and French masters were also much sought after.

Among the interesting exhibitions of old masters held in various New York galleries were: A superb exhibition of French Primitives, the first ever held in America; an exhibition of Venetian Painting from the fourteenth to the eighteenth centuries, including examples by Tintoretto, Veronese, Tiepolo, and a remarkable "Portrait of a Man" by Bartolommeo Veneto from the Holford Collection; a collection of paintings "From El Greco to Matisse," of most unusual interest, and including a recently discovered Rembrandt painting of "Lucretia," exhibited for the first time; an exhibition of "French Art of the Last Fifty Years"; Degas to Matisse, very fine; a remarkable exhibition of "Flower Paintings" from the middle of the sixteenth century down to 1927; a number of groups of French modern painting, including a beautiful survey of French Impressionism.

A memorial exhibition of the work of Claude Monet was held in the Boston Museum of Fine Arts. Memorial exhibitions of the work of Mary Cassatt and the work of Joseph Pennell were held in the Pennsylvania Museum and in the Library of Congress, Washington; and of Peter Paul Rubens, commemorating the 350th anniversary of his birth, in a New York gallery. Single exhibitions of great interest were: A collection of sculpture by Charles Despiau, seen for the first time in America; Despiau is considered France's foremost sculptor of the day. The first showing of the work of Jacob Epstein in America, a most interesting English sculptor; the work of Ferdinand Hodler, foremost Swiss painter; a retrospective exhibition of the work of Matisse covering 36 years and including his first exhibited painting; a comprehensive showing of the interesting water colors and gouaches of Constantin Guys, a French painter of great individuality active during the Restoration.

The annual exhibitions of summer art colonies and various art societies were held as usual. Among the latter should be especially mentioned the New Society of Artists; the Allied Artists of America; the New York Water Color Exhibition; the Brooklyn Museum Water-Color exhibition; the annual exhibition of American Art at the Detroit Museum; the exhibition of the Société Anonyme; the Multi-National Exhibition of Painting by Living Artists; the first exhibition of Associated Dealers in American Painting; the National Association of Women Painters and Sculptors; and the Salons of America. The eleventh annual exhibition of the Society of Independent Artists was held with a membership of 750 artists, each artist being allowed two works for exhibition. This Society has no jury and no prizes. The Salons of America is also a no-jury exhibition, and two new no-jury exhibitions were held in Boston and in Washington. Others were held in Chicago and in Buffalo. All the exhibits are hung alphabetically in these societies. Of interest were the exhibitions of Danish Painting, Sculpture and Applied Arts held in the Brooklyn Museum, and the fine exhibition of Swedish Decorative Art in the Metropolitan Museum of Art in New York.

A loan "Exhibition of Religious Art," held in a New York gallery, contained examples of the work of Botticelli, Raphael, Mantegna, Giovanni Bellini, Verrocchio, and other famous masters. The exhibition also contained some priceless tapestries and medieval ivories, all from American private collections.

The Architectural League of New York held one of its most ambitious exhibitions this year in the Grand Central Palace. It was considered the largest and most comprehensive of its kind ever given in the United States, and represented the outstanding achievements in architecture and its kindred arts and trades. More than twenty leading educational institutions in Greater New York exhibited in the educational section, and interesting talks were held for visitors on the origin and development of the various phases of the objects exhibited. Interior decoration and its coördination with the work of the sculptor and the architect formed one of the topics of discussion and the exhibits in this department were of greatest interest. Outstanding exhibits were: Murals by Eugene Savage for the Elks' National Memorial Hall; decorative items for the façade of the new Philadelphia Museum of Art; mural paintings by Arthur Covey for the Norton Memorial Hall, Worcester, Mass.; a series of stained glass windows for the Washington Memorial Chapel at Valley Forge by Nicola d'Ascenzo; and a series of mural decorations by Ernest Peixotto and Thomas Benton, the latter taken from scenes of early American history.

PENNSYLVANIA ACADEMY. The 122nd exhibition of the Pennsylvania Academy of Fine Arts contained 400 oil paintings and over 100 pieces of sculpture and the general ensemble presented a most ingratiating appearance. There is perhaps much truth to the assertion, constantly made by critics and artists, that this exhibition is the most representative and unprejudiced one held of American art each year. The portraits, figure subjects and landscapes were about equal in numbers and the majority were typically American in character. The awards were as follows: Temple Gold medal for the best oil painting by an American painter—Leon Kroll for a large family group, painted out of doors, entitled "My Wife's Family," an ambitiously conceived affair, the types portrayed decidedly un-American, and the landscape of a semi-tropical appearance; Carol H. Beck Gold Medal for the best oil portrait—John C. Johansen for a rendition of Elihu Root, a strong, simple and austere presentation; Walter Lippincott Prize for the best figure composition—Guy Brown Wiser, a delightful "Portrait of an Old Lady"; George D. Widener Memorial Gold Medal for the most meritorious piece of sculpture—Katherine Lane, "Narcisse Noir," a graceful, slender figure. Jennie Sesnan Gold Medal for the best landscape—John R. Grabach, "October," a colorful canvas, with strong compact design and spirited workmanship; Mary Smith Prize for best painting by a Philadelphia woman—Pearl Aiman Vansiever, a typical New Hope landscape, entitled rightly "New Hope"; James McClees Gold Medal for best sculpture group—awarded to J. Lawson Peasey, "Kids"; Edward T. Stotesbury Prize for the painting considered the most important contribution to the success of the exhibition, which seems quite a responsibility, and must be a painting never exhibited publicly before—Leslie P. Thompson, "Red and Silver," a young woman reclining, the handling gracious and pleasing. Other exhibitors included such artists of varying tendencies as: Fred Wagner, "The Manikin"; George Biddle, "The Betrothed"; Charles Burchfield, a characteristic landscape with houses; Edmund Tarbell, a New England landscape; Sidney Dickinson, Wayman Adams, Irving Wiles, Leopold Seyffert; Wilford Conrow, with portraits; George Luks and Guy Pene du Bois, figure subjects.

NATIONAL ACADEMY, SPRING. The 102nd annual exhibition of the National Academy presented an innovation which caused a considerable flutter in the staid rooms of the Fine Arts Building in New York. The large central gallery was occupied by an invited show of paintings of a distinctly radical tendency. Unfortunately it cannot be said that the display represented the best of so-called modern art in the United States. Nevertheless the contrast between the works of the academic brotherhood and those in the central room was sufficiently startling, and the commingling of the representatives of the two groups presented a spectacle of unusual interest. It did not seem probable that this experiment would be repeated. The modernistic painters represented included Pascin, Karfiol, Maurice Sterne, Guy Pene du Bois, Charles Burchfield, Charles Sheeler, Thomas Benton, and Boardman Robinson. The Academy show proper presented its usual competent and careful array of landscapes and portraits. Nor were any of the usual exhibitors missing. "Landscape with Figures" by John E. Costigan, A. N. A., perhaps the finest canvas by this talented artist, was awarded the Thomas B. Clarke Prize. The first, second and third Hallgarten Prizes were awarded to Antonio Martino, for "Winter," a pleasing landscape; Douglass Parshall, "The Red Sail," a California seascape; and Jerry Farnsworth, "Joaquin's Boys," an interesting figure composition. The first Altman Prize was awarded to Daniel Garber, N.A., for a typical landscape. "On the Delaware," a warm summer scene; the second Altman Prize went to Lester Stevens for "Rockport in Winter." Miss Helen Turner, N.A., won the Isaac Maynard Prize for a portrait of Brander Matthews, and the Saltus Medal for Merit was won by Edward Redfield with a landscape, "Cherry Valley." The Speyer Memorial Prize for the best animal painting was awarded to Albert Stewart for "Silver King." The sculpture exhibit was small and of negligible quality.

CHICAGO. ANNUAL EXHIBITION BY ARTISTS OF CHICAGO. The annual exhibition for 1927 by artists of Chicago and the vicinity, larger and more representative than ever, was held at the Art Institute from February 3 to March 8. This exhibition of local artists has increased greatly in size and importance in the past years, and public-spirited citizens have donated many prizes to stimulate the ardor of the artists. This year the following prizes were awarded: The Frank G. Logan Medal, with $500 either for purchase of a painting or piece of sculpture, or as a gift, the work of art to be executed by a resident of Cook County: to Margues E. Reitzel: the Fine Arts Building Purchase Prize donated by the estate of Charles A. Chapin for a painting selected from the exhibition and to be given to the Chicago Public School Art Society: won by Frederic Tellander, with "Over the Seine to La Cité"; the Mr. and Mrs. Julie F. Brower Prize of $300 to a resident artist of forty years: Rudolph F. Ingerle with "Sundown on the Holler"; the William Randolph Hearst Prize of $300 to Frederick Grant for "Thieves' Market"; The Edward Butler Fund of $200 for a painting to be presented to the public schools of Chicago: Margues E. Reitzel, "The Morning Route"; the Mrs. Julius Rosenwald Purchase Fund of $200 for a painting for the public schools of Chicago: H. Harrington Betts, "Gloriette"; the Joseph N. Eisendrath Prize of $200 for a painting by an artist who has exhibited for not more than five years: Carl Wuermer, "From my Studio Window"; the William A. Ormond Prize of $100: Mary Stafford, a portrait "John Fraser"; Morris Rosenwald Prize of $300: Joseph A. Fleck, "A Pueblo Flower"; Robert Jenkins Prize for a young artist who has not received a previous award: Ignatz Sahula, "The City of Dreadful Night." Other prize winners were: Walter Krawiec, Frances Bowman, Ethel Spears, William S. Schwartz, Carl Hoerman, John Spaulding, Edward A. Klauck, and E. Martin Jennings. With such a rich harvest of awards there was little surprise that this local society of artists surpasses in numbers and ardor perhaps any other similar group in the country.

NATIONAL ACADEMY, WINTER. This exhibition presented much the usual appearance, with a predominance of figure and portrait subjects. With landscapes in the minority, and resulting absence of brightly colored canvases, a more sombre note seemed to prevail, and this appeared especially so with this winter's academy show. Many of the landscapes themselves were painted in grays and sombre greens with lowering skies, heavy with clouds. No doubt the previous summer of uncertain weather and constant storms and fogs had something to do with this impression.

The first Altman Prize was awarded to Lillian Westcott Hale for a "Portrait of T. S. Hardin" in white riding breeches, high hat, a whip in one hand and a cigarette in the other. A rather stiffly ordered room furnished the background but the conception was carried through with unusual skill and vivacity of technique. "With the Three Children," by John Costigan, an outdoor scene, full of light and color, won the second Altman Prize. A sensitive and delicate portrait by Salvator Lascari was awarded the Proctor Prize; Jonas Lie received the Carnegie Prize for a colorful canvas of boats and water, birch trees in the foreground and an animated sky. Theodore van Soelen was awarded the J. Francis Murphy Prize for "Adobes, Snow and Sunshine"; and Sergeant Kendall the Isidor Medal for "Cypripedia" a pink nude figure of a young girl. The sculpture prizes were as follows: Margaret French Cresson, the Julia A. Shaw Memorial Prize for "Francesca," a portrait of charm and distinction; Leo Lentelli, the Helen Foster Barnett Prize for a sundial; Eleanor Mellon the Elizabeth Watrous gold medal for a portrait head, "Janice," conventionally handled.

CARNEGIE INSTITUTE, PITTSBURGH. The twenty-sixth International Exhibition opened, with 400 paintings, 280 from European countries and 120 from the United States. Sixteen nations were represented, and the exhibition was conceded to be the most stimulating and best arranged of any ever held in Pittsburgh. Great interest and presumably some consternation was shown in the award of the first prize, to Henri Matisse for a characteristic "Still Life." That this award, perhaps the most sought after and highly prized in the art world, should have been given to an artist who is one of the leaders of modern art, seems little short of epoch-making, and required on the part of the jury courage and strength of conviction. The second prize went to Anto Carte, a Belgian, for an interesting if somewhat stylized composition entitled "Motherhood." Andrew Dasburg, well known American painter, was awarded the third prize for a careful still-life composition entitled "Poppies." The winner of the first Honorable Mention was Antonio Donghi, an Italian, a leader of the modern painters in Italy. His painting was a large composition of several figures entitled "Carnival." Bernard Karfiol, a New York artist, won second Honorable Mention with a composition of two young girls, partially nude, standing against a background of sky and water. The Prize of the Garden Club of Allegheny County was given to Max Pechstein, a leading German painter, for a still life "Calla Lilies," which showed his mastery of rich and vibrant color.

In this year's exhibition the number of artists from each country was smaller and the number of paintings shown by each artist increased so that a better study could be made of their individual development. The jury of eight artists was as follows: Maurice Greiffenhagen, Great Britain; Professor Karl Hofer, Germany; Maurice Denis, France; Felice Casorati, Italy; Eugene Speicher, Horatio Walker, and Abram Poole, America; presided over by Homer Saint-Gaudens, Director of Fine Arts. Artists represented included: Augustus John, Sir William Orpen, A. J. Munnings, Ethel Walker, Dod Proctor, British; Le Sidaner, Matisse, Orthon Friesz, Henri de Waroquier, Dunoyer de Segonzac, Derain, Picasso, French; Karl Hofer, Anton Faistauer, Otto Dix, German; Felice Casorati, Giuseppe Montanari, the veteran Mancini, Italian; Edvard Munch, Norwegian; Max Svabinsky, Czechoslovakian; Randell Davey, Ross E. Moffatt, Leon Kroll, Rockwell Kent, Maurice Sterne, John Sloan, Richard Lahey, Joseph Golinkin and Robert Henri, American; Zuloaga, the brothers Zubuiarre, and A. Solana, Spanish; Boris Grigorieff and Alexandre Jacovleff, Russian. The only artist from Pittsburgh who was admitted was John Kane, a house-painter, who paints pictures in his leisure time. His "Scene from the Scottish Highlands," two children in kilts dancing the Highland Fling with bag-pipe accompaniment, displayed a naïveté somewhat reminiscent of the late Henri Rousseau. This painting was purchased by Mr. Andrew Dasburg, the winner of the third prize.

ART INSTITUTE, CHICAGO. The 40th annual exhibition of American paintings and sculpture opened with some 200 paintings and 50-odd pieces of sculpture. The exhibition as a whole presented an academic appearance, therefore nothing especially thrilling. The paintings were of pleasing subjects, well painted, with a decided preponderance of portraits and figure subjects. The sculpture presented an unusually strong and stimulating aspect. The numerous prizes were awarded as follows: The Logan gold medal and prize of $1500: John Costigan, "A Summer Day"; Logan silver medal and Prize of $1000: James Chapin, "The Old Farm Hand" a realistic portrayal of an old gnarled laborer; Mrs. Keith Spaulding Prize of $1000 for sculpture: John Storrs, "Portrait of Rosannah Sherman"; the Potter Palmer gold medal and prize of $1000: Arthur Carles, "Still Life," a crisp and scintillating bit of work; Harris silver medal and prize of $500: John Carroll, "Three People," a well-rendered group sitting at a café table, with a modern feeling in the skillful handling of color and planes; Harris bronze medal and prize: Samuel Halpert, "Nude"; M. V. Kohnstamm Prize: Carl Wuermer, "Summer Landscape," considered the most meritorious work in the exhibition; Martin B. Cahn Prize to Edward Klauck for "Pink and Black," a portrait of a young woman; the Peabody Prize to Macena Barton: "Sunday Morning," two young girls in old fashioned white dresses and hair in bangs; The W. M. R. French memorial gold medal was awarded to Ross Moffatt for "Cod Fisherman" a strong, well-modeled and characteristic canvas of a New England fisherman. Honorable mention was given to Jacob Smith, Karl Oberteuffer, J. Jeffrey Grant and Gaetano Cecere.

EUROPEAN EXHIBITIONS. The outstanding European exhibition of the year was undoubtedly the large loan exhibition held in Burlington House, London, of Flemish and Belgian art from the fourteenth to the nineteenth centuries. It was four years in preparation, and was made possible by the coöperation of the Belgian, French, and British governments, and by private owners in Europe and America, who generously loaned their treasures. This exhibition was considered one of the most remarkable ever held in Great Britain. Another exhibition of great interest, also held in London, was that of the famous W. A. Coats Collection of seventeenth century Dutch, eighteenth century English and modern French paintings, including a remarkable religious painting by Vermeer van Delft. Other exhibitions in Great Britain included: The centenary celebration of William Blake; a comprehensive group of French moderns held in Glasgow; and two fine exhibitions of the works of Rodin and van Gogh, in London. In Paris and in Vienna were held important displays of the work of British Artists, including examples from the eighteenth century. Official exhibitions in Paris were: The "Salon d'Automne" with an immense array; "Salon des Tuileries," the fifth annual exhibition, with no jury and by invitation only, the most important display of modern painting held in France to-day; the academic "Salon des Artistes," and the really mediocre "Société Nationale des Beaux Arts." The Royal Academy show in London presented the same appearance as in previous years, with many large, official portraits by well-known artists.

ARTIFICIAL SILK. See RAYON.

ARTILLERY. See MILITARY PROGRESS.

ART INSTITUTE, CHICAGO. See ART EXHIBITIONS.

ART MUSEUMS. During the year 1927 museums all over the United States showed an unprecedented activity, adding to their collections a long list of splendid works of art. The Metropolitan Museum of Art in New York announced by purchase the acquisition of a "Madonna and Child" by Antonello da Messina, a work of highest importance; "Portrait of Alfonso d'Este," by Titian, an impressive portrait of rare beauty; "Three Graces," by John Singer Sargent, a very large portrait group of the famous Wyndham sisters; a bronze head of "Beethoven" by Bourdelle, the French sculptor; "Assumption of the Virgin" by Ambrogio Borgogne; a rare fourteenth century English chasuble, the only one of its type in America, an unusually important addition to the Museum collection of textiles and fabrics. Also eight fine Gothic tapestries, which were purchased from the monastery of Krems in lower Austria; a rare wood-cut, "Pharaoh's Crossing of the Red Sea" by Titian and dalle Greche; two American paintings by Leopold Seyffert and Frank Benson and a sculpture by Harriet Frishmuth. The suit over the Theodore M. Davis Collection of Egyptian Antiquities was settled in favor of the Museum, which will retain in its possession this valuable addition to the Egyptian department. A fund to be known as the Elisha Whittelsey Fund, for the purchase of rare objects of art, was a bequest of Mr. Whittelsey.

The Boston Museum of Art collections were enriched as follows: A bequest of paintings from Mrs. Elizabeth Howard Bartol, including a Rubens and a Corot; the Swann Collection, with a Gilbert Stuart and a John la Farge; 24 paintings to be known as the Juliana Cheney Edwards Collection, including examples by Gainsborough, Reynolds and Sargent; a marble replica of "The Awakening" by Maurice Sterne, the gift of Mrs. Galen Stone; a seventh century stone Indian "Durga," the gift of Denman Ross; "St. Martin of Tours" by El Greco, a gift; "The Marriage of St. Catherine" by Lorenzo Lotto, and a life-size Sumerian Diorite head, both purchases.

The Minneapolis Museum opened a new wing, and acquired by gift a select collection of Chinese snuff bottles. The purchases and gifts for the Brooklyn Museum during the year were: Paintings by Jan Bosboom, Robert Reid, Henry Bacon, Allen Duggett, Henry Roseland; two early American portraits by John Smybert; "Portrait of a Lady" by John Neagle; paintings by Mancini and Forain; and a fine sacristy doorway to be added to the new galleries for Italian Renaissance works of art. Detroit celebrated the opening of a beautiful new museum building with a very fine loan collection. The acquisitions for the year included: "The Man with a Flute," by Titian; "Visitation of St. Elizabeth," by Rembrandt, a beautiful example; a lovely "Annunciation" by Gerard David; "The Todd Family" by Gilbert Stuart, a gift; a fifteenth century Gothic Chapel, which was incorporated in the new building; a portrait by John Singer Sargent and a landscape by Arthur Davies.

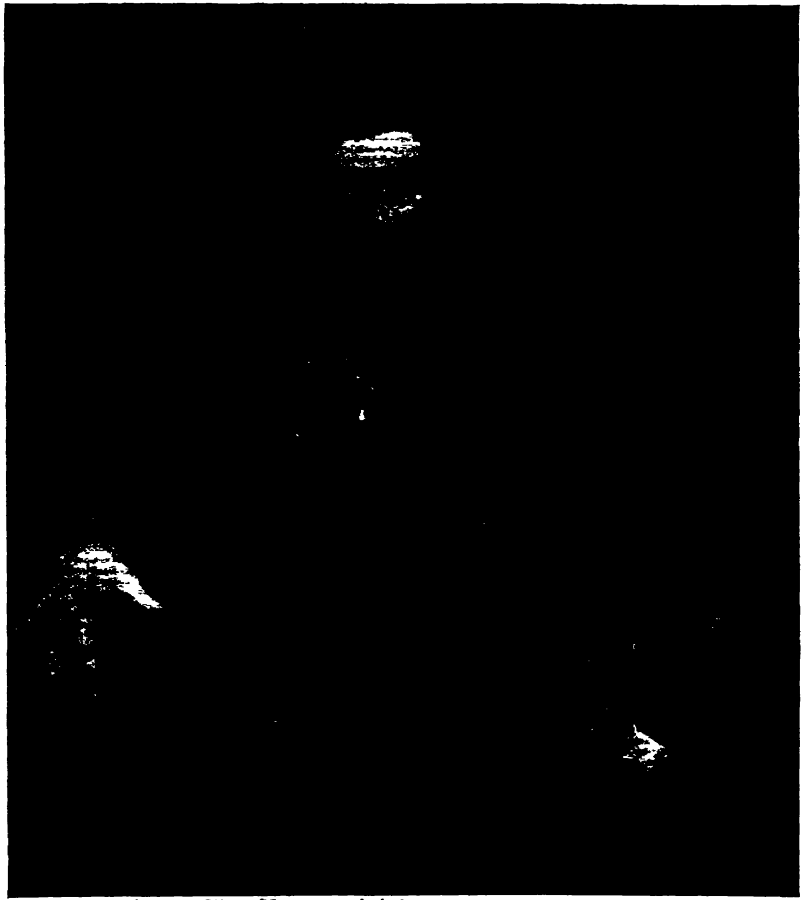
The Denver Art Museum purchased a life-size bronze statue by Maillol and a portrait head by Rubens; and the Toledo Museum acquired a series of etchings by Rembrandt, Ostade, Meryon, and a painting by Ferdinand Bol. A fine portrait of a "Tahitian woman with children," was acquired by gift by the Chicago Art Institute. The Worcester Museum purchased a medieval stone chapel of the twelfth century from Central France and a beautiful Lorenzo Veneziano polyptych; the San Diego Art Museum reported the enrichment of their collections by a seventeenth century Gobelin tapestry; a painting by Coello; a select collection of jade; and prints by Rockwell Kent and Charles Sheehan. A huge mural decoration covering the entire wall of a Chinese monastery was installed in the University of Pennsylvania Museum. The new Philadelphia Museum of Art acquired 10 antique period rooms, early American and English, and a gift of $350,000 from the Department of Education for a panorama of the history of art, but contingent that $650,000 more be raised by public subscription.

A portrait head by Odilon Redon; "Madonna and Child" by Tintoretto; a rare medieval portable ivory altar; a beautiful Praxitellean bronze Apollo statuette, a terra cotta statuette of a Greek goddess and a French primitive "Portrait of St. Louis," were added by purchase and gift to the collections of the Cleveland Museum. Acquisitions to the Albright Art Gallery of Buffalo were announced as follows: "The Mockery of Christ," Lucas Cranach; "St. Jerome" by Patinir; a diptych by Barend van Orley; "Mlle. Pogany," a marble head by Brancusi; landscapes by Cézanne and Matisse; and portraits by Courbet and Edwin Dickinson. Also a stone Indian Brahma and an Egyptian statue of the sixteenth dynasty.

A gift of $1,000,000, and the home and art collection of Mr. and Mrs. Charles P. Taft, valued at $3,000,000, was made by them to the Cincinnati Institute of Fine Arts, contingent on the raising of an additional endowment of $2,500,000 by the directors of the Institute. The Taft Collection is well-known, and contains masterpieces by Rembrandt, Gainsborough, Jan Steen, Van Dyck and others, besides fine specimens of Limoges ware and faience. The Institute also received a bequest of the Edgecliffe Art Collection from the estate of the late Mrs. Emery. The Carnegie Institute, Pittsburgh, received a collection of rare objects of art, including miniatures, 300 in all, illuminated manuscripts and ivory carvings, the gift of Mr. and Mrs. Herbert du Puy. In June the new Fogg Art Museum, Harvard University, was opened with a beautiful loan exhibition of paintings, tapestries and illuminated manuscripts, the latter from the Morgan Collection, New York City.

A "Portrait of a Nobleman" by El Greco; "Virgin and Child" by Spinello Aretino; and "Virgin and Child" by Bartolommeo Vivarini formed the additions of the year to the collections of the City Art Museum of St. Louis.

European Museums. A new Museum was opened in Madrid to be devoted to the history and development of that city and the Prado Museum was enriched by five paintings, including an El Greco; the Cerralbo Museum of Spanish paintings and antiquities was bequeathed to the city by the late Marquis de Cerralbo. The Barcelona Museum was enriched with purchases and gifts, and in Romanesque painting and sculpture its collections are now the finest in the world. The National Gallery, London, acquired: "The Trinity," by Titian; a Monet landscape; "Christ taking leave of his Mother," by Correggio, from the Benson Collection, a gift of Sir Joseph Duveen. A "Portrait of Pietro Loredano," by Tintoretto, was purchased by the Melbourne Gallery, Australia; the Dresden National Gallery purchased a large Tiepolo, "Triumph of Amphitrite"; the Royal Art Gallery



Courtesy of Metropolitan Museum of Art

PORTRAIT OF ALFONSO D'ESTE
Titian
Acquired by the Metropolitan Museum of Art, New York

Courtesy of Sir Joseph Duveen. Bart.

"PINKIE"
Sir Thomas Lawrence
In the Collection of Henry E Huntington

TWO PAINTINGS OF INTEREST BROUGHT TO THE UNITED STATES IN 1927

of the Hague acquired a fine Ferdinand Bol, "Portrait of a Young Man." The famous religious painting by Vermeer van Delft, "Christ in the House of Martha and Mary," from the Coats Collection, was given to the Scottish National Gallery.

ART SALES. One of the most important picture sales in America in recent years was the 37 paintings forming the collection of the late James Stillman and the late C. C. Stillman. Although the group was small, many of the paintings were famous masterpieces and the total sum realized, $716,950, was an American record for a single session. The collection contained examples by Corot, Ingres, Theodore Rousseau, John Crome, Daumier, Murillo, Moroni, Giovanni Bellini, Francia, Pontormo, Tiepolo, and two fine Rembrandts, "The Evangelist," and "Titus in an Armchair." The latter painting was bid in by Sir Joseph Duveen for $270,000, a price which broke a record, which has stood since the Yerkes Sale in 1910, for a single picture. The striking "Halberdier" by Pontormo brought $39,000 in this sale. In 1907 Mr. Stillman paid $10,000 for this painting. The sale of the collection of Dr. John E. Stilwell aroused considerable interest. Paintings of old masters, wood carvings, especially medieval German, bronzes, marbles and furniture were disposed of.

Still another collection of great interest, in view of the big prices obtained, was that of the late Desmond FitzGerald, consisting of American and French modern water colors, etchings and paintings. "The Portage," by Winslow Homer, brought the hitherto unheard-of price of $15,700, for a water color. Mr. FitzGerald was said to have paid $250 for this piece.

The etchings and water colors of Frank W. Benson brought unexpectedly high prices, one water color, "Poling the Rapids," realizing $2-700. The remainder of the famous Quinn Collection of modern art was dispersed at auction.

Other auctions of interest were: The J. Francis Murphy sale and the George Inness sale; the Alphonse Kann Collection of Egyptian, Greek and Roman antiquities; the de Souhami collection of Gothic art; the Grassi, Tolentino, Cattadori Chiesa and Volpi collections of Italian art; the Ruiz and de las Almenas collections of Spanish art; the Benguiat sale of rare Persian rugs, one of which, a marvelous royal Persian animal rug, bringing a price of $100,-000, established a world record for any rug sold at auction; and the De Kermaingant Gothic Collection, including fine Gothic tapestries.

Single sales of great interest were: a remarkably fine "Portrait of the Comtesse d'Haussonville," by Ingres; two rare Sienese paintings from the Benson Collection, by Duccio and Barna da Siena, all three acquired by the Frick Collection; "Portrait of a Man" by Rembrandt, from the James Ross Collection, acquired by a private collector in Boston; "The Market Cart" by Gainsborough and "Captain Little's Children," by Rommey, formerly in the Michelham collection, acquired by a Detroit collector; a portrait by Raphael, acquired by Jacob Epstein of Baltimore; a rare Petrus Christus, "Portrait of a Carthusian Monk," purchased by Jules Bache of New York; "Portrait of a Genoese Nobleman" by Anthony van Dyck, a striking full-length figure; from the Huldschinsky Collection of Berlin, acquired by a prominent New York collector; a full-length group, "Madonna and Child," by Nino de Pisano was obtained by Mrs. Edsel Ford of Detroit; and "Pinkie" by Sir Thomas Lawrence formed an important addition to the already famous collection of the late Henry E. Huntington in California. John T. Spaulding acquired a portrait by Goya, "Don Manuel Garcia."

In London a number of unusually important collections were dispersed at auction. These included: the late Sir George Lindsay Holford Collection of Italian paintings, furniture and majolica, with examples by Botticelli, Pesellino, Lotto, Leonardo da Vinci and Bartolommeo Veneto; the Pallavicini sale of Italian and Spanish paintings; the collection of the late James Ross of Montreal, old English masters and seventeenth century Dutch paintings; the Yorke Collection of seventeenth and eighteenth century paintings; Sir James Murray's collection of modern paintings with outstanding examples by Degas, Daumier, van Gogh, Sargent and others; and the Lawrence Currie Collection, including a famous "Madonna and Child" by Rubens. Of greatest interest was the sale of the famous Benson Collection of 114 Italian paintings, one of the greatest private collections of Italian masters in Europe, en bloc to Sir Joseph Duveen for the reported figure of $3,-000,000. It was understood that the entire collection would be brought to America. All phases of Italian painting are represented by masterpieces of the greatest artists, including Antonello da Messina, Giovanni Bellini, Carlo Crivelli, Giorgione, Titian, Lotto, Veronese, Andrea del Sarto, Luca Signorelli, Bernardino Luini and Cosimo Tura. One of the gems of the collection was a large canvas by Piero di Cosimo, a landscape with figures, of classic beauty.

Other important European sales were: In Paris: Mme. de Polés Collection of fine French and English eighteenth century furniture, paintings, art objects, and tapestries, which broke all French auction records with the high prices obtained; the Eugene Bureau Collection of paintings, dispersed in Amsterdam; Dutch and Flemish paintings belonging to the late Baron Janssen, sold in Brussels; the collection of Dr. James Simon of Berlin, of Dutch paintings, also ivories, tapestries, sculptures, and the Abraham Preyer Collection of old Dutch masters, both sold in Amsterdam. A newly-discovered Vermeer van Delft, a profile portrait of a young girl, was sold to a New York and Paris dealer, and an American collector acquired a beautiful figure subject by the same master, "The Lacemaker" from a private collection in Europe.

ARTSYBASHEV, MIKHAIL PETROVITCH. Russian novelist, died at Warsaw, March 4. He was born in South Russia, Oct. 18, 1878, and while Tartar in name and origin was of mixed descent, writing of himself, "In my veins runs Russian, French, Georgian and Polish blood." The famous Kosciusko was his maternal great-grandfather. He was left a sickly orphan and struggled for an education, first directing his attention to painting, but being without means to prosecute such studies turned to writing. When a story of his was printed, he determined to become an author. He wrote a number of short stories which were published, and at the age of 25 produced his first novel, *Sanin*. He found difficulty in obtaining a publisher for this, and the book did not appear until 1907. Its success was phenomenal, and it was one of the most notable books published in Russia in a decade. In 1912 Artsybashev served a two months' sentence in a Russian prison for his revolutionary ideas and his frank realism, but this in no way affected his popularity, and he continued writing in the same realistic vein. His second novel, *U Polsledneii Chertiy*, was an attempt to depict Russian provincial society after the abortive revolution of 1905. This novel, as well as *Sanin*, was translated into English in 1915. The novel, *Voina*, was translated into English, with the title, *War*, in 1918, and other works of Artsybashev brought before the English reading public were *The Savage* and the plays, *Jealousy*, *Enemies* and *The Law of the Savage* (1923). Artsybashev was considered among the best of contemporary Russian writers, being of the same school as Gorki and Andréef, and his method and style have been compared with those of Maupassant. His novel, *Sanin*, marked a revolt against the pessimism of Turgeniev, the Christian non-resistance of Tolstoy, and the current type of Russian philosophy. He wrote with frankness, and seemed to be sympathetic with all of his characters, which he handled with literary skill. He produced little after 1914, but his work was translated into German, Yiddish and English, and his reputation spread in the Anglo-Saxon countries.

ASBESTOS. The Dominion of Canada is the leading source of unmanufactured asbestos and the amount shipped in 1926 was stated at 278,689 tons, valued at $10,095,487. In 1927 it was estimated that the output of Canadian asbestos would be about the same as in 1926 but the value would be higher. There were twelve Canadian mines in operation; six in the Thetford district; one at Black Lake; one at Coleraine, two at East Broughton; and the largest single operation at Asbestos, near Danville. Outside of Canada, South Africa was the next largest producer. The output of Rhodesia in 1925 was 34,349 long tons and in 1927 it was estimated at about 36,000. The Union of South Africa in 1925 produced 9078 tons and its output in 1927 was estimated at about 15,000. Cyprus in 1927 had increased its production to about 10,000 tons, while the Russian mines which were important producers before the War were estimated to turn out 10,000 tons also. In 1926 the United States' production was 1358 short tons, valued at $134,731, while in 1927 its production was about 1500 tons. Italy, which in 1925 had produced 2490 tons, was estimated to have about the same output in 1927.

ASHANTI. See Gold Coast.

ASHLEY, Sir William (James). British economist and author, professor of economic history at Harvard University, 1892–1901, died at London, July 23. He was born in London, Feb. 25, 1860, and was educated at St. Olave's School, Southwark, and at Oxford University, being history scholar of Balliol College and attaining various honors and prizes during his residence at Oxford. From 1885 to 1888 he was fellow and lecturer at Lincoln College, Oxford, and in the latter year became professor of political economy at Toronto University. In 1892 he was appointed professor of economic history at Harvard University; his chair was said to be the first of its kind. He served until 1901, when he became professor of commerce at Birmingham University, becoming emeritus professor in 1925, and also serving as vice principal of that institution, 1918–25. He was a member of many economic and other learned societies, serving as vice president of the Royal Economic Society and as president of the economic section of the British Association for the Advancement of Science in 1907 and 1924. He was president of the economic-historical section of the International Historical Congress in 1913, and was Ball lecturer at Oxford in 1922. He was a corresponding member of the Massachusetts Historical Society and the Association of the Royal Academy of Belgium. Between 1899 and 1920 he was examiner in history, economics or commerce in various Universities, Cambridge, London, Durham, in Wales and in Ireland. He was a member of the committee on coal prices in 1915, of the Huth-Jackson committee in 1916, of the food prices committee in 1917, of the consumers' council and cost of living committee in 1918, of the Royal Commission on Agriculture in 1919, of the glassware committee in 1921, of the Agricultural Tribunal in 1923, and of the tariff advisory committee in the same year, and of the committee on industry and trade in 1924. He had been knighted in 1917. He wrote extensively on economics, and was editor of the *Economic Classics* series, for which he translated Schmoller's *Mercantile System* in 1896 and Turgot's *Reflections* in 1898. He wrote an introduction to *English Economic History and Theory* (part i, 1888; part ii, 1893) (a work translated into German, French and Japanese). He also wrote: *Surveys, Historic and Economic* (1900); *Adjustment of Wages* (1903); *The Tariff Problem* (1903) (fourth edition, enlarged, 1920); *Progress of the German Working Classes* (1904) (translated into German); *The Rise in Prices* (1912) (translated into German and Swedish); *Gold and Prices* (1912); *Economic Organization of England* (1914) (translated into French); and *The Christian Outlook* (1925). His editorial work included the preparation of *British Industries* (1903); *British Dominions* (1911); and *Mill's Political Economy* (1909). He was the joint author of the *Report of Unionist Social Reform Committee on Industrial Unrest* (1914).

ASIA. See China, Japan, and the other articles on the subdivisions of the continent. See also the articles on Archæology and Exploration.

ASIR. See Arabia.

ASPHALT. In 1926 the United States produced 715,180 short tons of native asphalt and related bitumens, valued at $4,484,960, and manufactured asphalt aggregating 3,458,470 short tons, with a total value of $46,551,400. Of this last amount, 1,245,160 tons, valued at $15,452,940, was produced from domestic petroleum and 2,213,310 tons, valued at $31,098,460, from foreign petroleum. Imports of native asphalt and bituminous rock into the United States during 1926 amounted to 142,632 short tons, an increase over 1925 of 17 per cent. This came from Trinidad and Tobago, which shipped 76,562 tons and from Venezuela, which shipped 46,292 tons, as a result of development work at the Bermudez Lake deposits.

ASTHMA. In the article entitled Allergic Diseases (which see) is an account of the allergic chamber in which it is possible to free the air of those specifically irritating particles which provoke the paroxysms of asthma during sleep. The Dutch authors mentioned installed these sleeping cabinets in 47 private houses and here and in certain hospitals over 500 asthmatics were treated with brilliant results, all evidences of the paroxysms disappearing in two or three days. The effects were the same as if the patients had sought a climate of high altitude, high mountain air having been practically brought to the low altitude city with its contaminated air.

A study of more than 40 asthmatics by Dr. Eskil Kylin, a Swedish practitioner (*Klinische Wochenschrift*, Sept. 10, 1927) appears to show that the susceptibility to allergens depends on some peculiarity of metabolism. Compared with the average man, asthmatics' blood contains a deficit of calcium and an excess of potassium. The paroxysms of the disease are preceded by an increase of blood chlorine and followed by a diminution of the same. The urine contains an excess of calcium. The blood pressure reaction after the injection of adrenalin is of the vagotonic type and there is evidence that the mechanism which regulates the blood pressure, presumably as a result of the disturbed calcium-potassium equilibrium, is insufficient for the demands upon it.

ASTRONOMY. The internal distribution of temperature, pressure, and density in a star under the influence of its own gravitational attraction may be found by solving the mathematical equations which express the necessary conditions of mechanical and radiative equilibrium. In formulating and solving these equations, however, Jeans and Eddington have made use of different assumptions; and on the basis of their respective theories, together with differing hypotheses as to the generation of stellar energy, several alternative conceptions of the course of stellar evolution have recently been suggested.

It is now generally agreed that the transformation of matter into energy is the source of stellar radiation. According to Jeans, the rate of transmutation must be independent of temperature and pressure (else the stars would be unstable), but is different for different kinds of matter; the heaviest chemical elements have the greatest capacity for generating energy, and probably most of the stellar radiation comes from elements of atomic weights far higher than those of any substances found on the earth. The most active elements become used up first; hence the average atomic weight of the material, and the amount of energy radiated per unit mass, continually decrease during the life of a star. The most recent investigations of Jeans have led him to the conclusion that under the above circumstances a purely gaseous star would be dynamically unstable; and such extensive departures from the gas laws are required to produce stability, that the condition of a large part of the mass of a star (though not necessarily a large part of its volume) is better described as liquid than gaseous. The prevalence of binaries, which have almost certainly been formed by fission, supports this view, since Jeans has shown that fission cannot take place unless the internal state approximates to incompressibility. In a liquid star, radiation pressure ceases to be important.

Jeans suggests that a star is first born out of a nebula, with a density so low that it is in the gaseous state throughout and hence unstable. The star will either contract rapidly until substantial deviations from the gas laws occur in the interior, or, if its mass be large, it will pulsate with a period of a few hundred days and begin life as a long-period variable. Once the star has become stable, its further evolution is determined by the rate of transformation of matter into energy. As the star loses mass and radiating power (through the annihilation of active elements, and the radiation of the resulting energy) it slowly contracts, and the internal temperature and density increase. The rise in temperature causes the atoms to become more and more highly ionized; now, in an atom the external electrons are distributed around the nucleus in successive "shells" or "rings," and at different stages of ionization the atoms are of very different effective sizes. As the density increases because of the contraction, the atoms become more closely packed together; but as each ring of electrons is in turn finally stripped off by the rising temperature, the packing is relieved through the consequent decrease in size of the atoms. The liquid state is most closely approached just before a ring is lost, while just afterwards there is a short period of instability and rapid contraction during which the star is gaseous.

The evolution of a star consists in a series of drops from one stable configuration to another, together with a slow steady progress through each such configuration, though fission may intervene at any stage; the giants, dwarfs, and white dwarfs represent stable states, separated from each other by unstable configurations. The "main sequence" is composed of stars in which most of the atoms in the interior are ionized down to the so-called K ring, and packed together until they form a liquid; as the star slowly contracts and gets hotter it moves down the main sequence until ionization of the K ring finally begins, when it quickly passes through an unstable condition and becomes a white dwarf.

In the giant stars, the atoms in the interior are ionized down to the L ring; in the white dwarfs, most of them have lost all their external electrons, and, according to Jeans, are therefore immune to annihilation. The little energy which the white dwarfs can generate and radiate comes from their cooler outermost portions; these stars are in an almost stagnant state, and have incredibly high internal temperatures and densities.

STRUCTURE OF THE UNIVERSE. Next to the galactic concentration, the most striking feature of the distribution of stars over the sky is an irregularity, recently studied by Seares, due to an eccentric location of the sun 4000 light years from the centre of the system formed by stars brighter than the 18th magnitude. Since, according to Shapley, the sun is 80,000 light years from the centre of the system formed by the globular clusters, the latter system is not concentric with the stellar system.

According to Kreiken, the sun is also eccentrically located in the local star cloud. This local cluster includes the majority of the brighter stars, and its effect can be traced to stars of the 15th magnitude; it has lately been estimated to be about 20,000 light years in diameter, instead of 3500 as previously estimated from the bright helium stars.

E. S. King has found that, on the average, stars up to about 100 light years distant are more reddish the farther away they are, but that beyond there is no increase in redness with distance; this indicates the existence of an absorbing nebulous cloud enveloping the local cluster.

ASTROPHYSICS. An atom or a molecule, in a given state of ionization, is incapable, if left to itself, of permanently containing more than a certain definite amount of internal energy; and if more than the normal amount is in any way acquired—e.g. through absorption of ight, or by collision—the excess is ordinarily given out again very quickly in the form of radiation. Thus, comets, in addition to reflectng sunlight, are stimulated to glow as they approach the sun; the bright bands in the spectrum (due to chemical compounds that remain gaseous at very low temperatures) are mostly "resonance bands," i.e. they arise from the emission of light that has previously been absorbed from sunshine by non-ionized molecules with the normal energy content. In a similar manner, some of the diffuse galactic nebulæ reflect the light of nearby stars and show a continuous spectrum, while others are stimulated to self-luminosity by associated stars and show an emission spectrum. Nebular emission spectra are produced only by stars of high temperature, and the hotter the star the stronger the spectrum; the hottest stars of all are those found at the centres of the planetary nebulæ. The stellar temperatures necessary to account for the observed luminosity of the nebulæ have been calculated by Zanstra from the quantum theory of radiation, and show good agreement with the temperatures deduced in other ways.

Sometimes, upon acquiring an excess of energy, an atom goes into a condition known as "metastable," in which it remains for a relatively long time before giving out radiation. Under terrestrial conditions, an atom in this state usually gives up the excess energy by colliding with another atom before it has had a chance to radiate at all, but collisions are so infrequent in the excessively tenuous nebulæ that the atoms usually return to the normal state from even the metastable condition by emitting radiation; the modern theory of the structure of line spectra indicates what lines would be produced in this process, even though they may never have been observed in the laboratory, and in this way I. S. Bowen has shown that nearly all the stronger lines of "nebulium" are due to metastable atoms of ionized oxygen and nitrogen. The same procedure applied to metastable ionized iron has enabled Merrill to dentify a number of prominent lines of hitherto unknown origin in the spectra of certain stars.

I. M. Freeman claims to have identified about two-thirds of the lines of coronium with argon.

Ch'ing-Sung Yü, at the Lick Observatory, has developed a promising new method of determinng spectroscopic parallaxes, by means of the continuous absorption spectrum associated with the limit of the Balmer series of hydrogen; the ntensity of this spectrum is a measure of the extent to which hydrogen is ionized in the star, and is a function of color temperature and absolute magnitude.

STARS, CLUSTERS, AND NEBULÆ. An extensive study, by O. Struve, of the fixed calcium lines n the spectra of the hotter stars, indicates that cium clouds which are not directly connected with stars and are most abundant near the borders of our local cluster. Hubble, by comparing two photographs taken 15 years apart, has found the Network Nebula in Cygnus to be expanding at the rate of 10 seconds of arc per century. Nova Aquilæ No. 3 now has a nebulous disk sixteen seconds across, due to a uniform expansion of about two seconds per year since the outburst; when combined with early radial velocity measures, this gives a parallax of 0.0028 seconds; the spectrum is approaching the Wolf-Rayet type. According to a recent trigonometric parallax determination by Alden, the Pleiades are 300 light years distant, and 35 light years in diameter; the star density is ten times that in the neighborhood of our sun. Wassink has found that Præsepe and the Hyades are twin clusters, traveling in space parallel to each other with the same speed. The mathematical relation between spectral type and length of period of the Cepheid variables, recently determined by Adams and Joy, has been shown by Russell to be in close agreement with that which theoretically should hold in stars undergoing dynamical pulsations and obeying the observed period-luminosity law; the cluster-type variables, however, seem to be governed by different dynamical laws of uncertain nature. The third nearest star so far as now known, with the lowest absolute magnitude yet observed, has recently been discovered by van Maanen to be Wolf 359. The Cepheid variable TX Ophiuchi has been found to have the unusually high radial velocity of –160 km/sec. The far southern star Beta Doradus, of the fourth magnitude, has just been found to be a Cepheid variable with a fluctuation of one magnitude, that curiously has escaped detection during all the centuries that the sky has been studied. Remeasurements with the interferometer have shown the diameter of Betelgeuse to be increasing.

SUN. E. A. Milne and others have shown mathematically that in the solar chromosphere the atoms are supported mainly by radiation pressure; and S. R. Pike has found that the loss of support due to the reduction of temperature in a sunspot diminishes the partial pressure of the calcium vapor over the spot sufficiently to account for the high-level inflow over spots observed by Evershed and St. John.

The spectrohelioscope has been improved and developed by Hale, and used most successfully, in the visual study of the details of solar phenomena. In particular, his observations on the flow of hydrogen in the vicinity of spots have confirmed his previous conclusions that the law of gyratory storms in the solar atmosphere is the same as the law of terrestrial cyclonic storms.

An elaborate revision and extension of Rowland's great "Table of Solar Spectrum Wavelengths," which will be of the utmost value to physics and astronomy alike, was nearing completion at Mount Wilson.

PLANETS AND SATELLITES. From observations of surface markings on Mercury, Antoniadi has concluded that the periods of rotation and revolution are the same. The photography of the planets in monochromatic light is yielding many interesting results; in ultraviolet light, Venus shows a remarkable amount of detail, including equator, and bright areas near the poles. The radiometric observations of Coblentz and Lampland have shown the outer atmospheres of the giant planets to be at a very low temperature; the thick cloud layers, however, would be an effective blanket to outgoing radiation, hence the surfaces may be at much higher temperatures. The strong absorption bands in the spectra are still of unknown origin.

Radiometric observations on the dark side of the moon by Pettit and Nicholson indicate a temperature of 110° Abs. During the lunar eclipse of June 14–15, 1927, the temperature of the illuminated portion dropped from 350° Abs. to 170° Abs. during the passage through the penumbra, and to 150° Abs. during totality. From a comparison of the degree of polarization of moonlight with that of light reflected from various terrestrial substances, F. E. Wright has concluded that the lunar surface is probably composed of pumiceous substances high in silica, of quartz porphyries, powders of transparent substances, and possibly trachytes and granites, but with no basic rocks; this is what we should expect from the low density of the moon.

CELESTIAL MECHANICS. Since tidal friction occurs almost entirely in shallow seas which are liable to silting, the changes in the rotation of the earth and the resulting secular accelerations of the heavenly bodies may be variable; W. de Sitter suggests that this may explain the discordance between the secular accelerations of the sun, Mercury, and Venus (which are determined mainly from modern observations, and are proportional to the mean motions as they should be if due to tidal friction) and that of the moon (which is determined from both ancient and modern observations, and is not proportional to the mean motion).

ASTRONOMICAL PHENOMENA. The total solar eclipse of June 29, witnessed through thin clouds in England, was the second one within a few years to be visible in a densely populated region; it was hidden by clouds in most places. Ten comets appeared during 1927, including the 37th observed return of Encke, and returns of Pons-Winnecke, Grigg-Skjellerup, and Schaumasse. Pons-Winnecke became faintly visible to the naked eye in June; and a new comet discovered by Skjellerup on December 3 reached daylight visibility when close to the sun, but faded thereafter with great rapidity.

NECROLOGY. Svante Arrhenius (q.v.), October 2; Wm. F. Rigge (q.v.), March 31; Jens Fredrik Schroeter (q.v.). April 28; Vincenzo Cerulli (q.v.), May 30; Thomas Lewis (q.v.), June 5.

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ASTROPHYSICS. See ASTRONOMY.

ATHENS. See ARCHÆOLOGY.

ATHLETICS, TRACK and FIELD. Lloyd Hahn of the Boston Athletic Association, Sabin Carr of Yale University, John Gibson of Fordham University, Charles Borah of the University of Southern California and Chester Bowman of the Newark Athletic Club, were the outstanding figures during 1927 in American track and field athletics. Hahn confined his efforts to indoor competition where he performed most sensationally. He ran the third fastest mile ever turned in on an American indoor course, Madison Square Garden, New York City, his time being 4.12⅕, or within a fifth of a second of the indoor record. Edvin Wide, the famed Swedish runner, was the competitor who forced Hahn to uncover such amazing speed.

The best time ever made in the world for 1000 yards and 1000 meters also went to the credit of Hahn, but unfortunately the International Amateur Athletic Federation does not recognize indoor marks as world records. Gibson's most noteworthy feat was his defeat of Lord Burghley, the English runner, in the 400-meter hurdle race at the University of Pennsylvania's Relay Carnival. Afterward Gibson competed in the national championships at Lincoln, Neb., where he broke the world's 440-yard hurdle record by topping the timbers in 52⅗ seconds. Only a sprint during the last few feet of the race enabled him to beat out F. Morgan Taylor, Olympic champion and defending title holder.

Carr's notable achievement was his pole vault of 14 feet at the Intercollegiate meet in Philadelphia which set a new world record. Previously Carr had broken the indoor figure of 13 feet, 9¼ inches at Madison Square Garden. Bowman's contribution to the sensations of the year was his equaling of the world record for the 100-yard dash, 9⅗ seconds, in a race in which he defeated the most consistent sprint performer of the year, Charles Borah. At the Intercollegiate meet Borah captured both the century and furlong events, covering the 220 yards in 20⁹⁄₁₀ seconds, thus erasing a mark that had stood for 31 years. His time for the 100 yards was 9⅘ seconds, or a fifth of a second slower than the world record.

It was Bowman, too, who collaborated in the setting of a new world relay record for 440 yards. The Newark Athletic Club team with Bowman as a member covered the distance in 41 seconds. In this connection it should be noted that the Olympic record for 400 meters, which is equal to 437.4 yards, is likewise 41 seconds, On the same day that the Newark relayers performed so mightily they ran a dead heat with the New York Athletic Club 880-yard team in time that was a fifth of a second slower than the world record. A run-off of this dead heat resulted in the New York A. C. team equaling the world record.

Only four champions retained their titles in the national Amateur Athletic Union meet at Lincoln, Neb. They were De Hart Hubbard, Cincinnati (unattached), who set a new national mark for the broad jump with 25 feet, 8¾ inches; Harry Hinkel, New York Athletic Club, in the 3-mile walk; Pat McDonald, New York Athletic Club, in the 56-pound weight distance throw, and Levi Casey, Los Angeles Athletic Club, in the hop, step and jump.

The Amateur Athletic Union title holders, outdoor, for 1927 follow:

100-yard dash, Chester Bowman, Newark A C.; 220-yard dash, Charles Borah, University of Southern California; 440-yard run, Herman Phillips, Illinois A. C.; 880-yard run, Ray Watson, Illinois A. C.; mile run, Ray Conger, Illinois A. C.; 6-mile run, Willie Ritola, Finnish-American A. C.; 120-yard high hurdles, Charles Werner, Illinois A. C.; 220-yard low hurdles, Robert Maxwell, Los Angeles A. C ; 440-yard hurdles, John Gibson, Bloomfield (N. J.) Lyceum; 3-mile walk, Harry Hinkel, New York A. C ; running high jump, Robert King, Olympic Club , 16-lb hammer throw, Jack Merchant, Olympic Club ; javelin throw, Charles Harlow, Hollywood A. C.; running broad jump, DeHart Hubbard, unattached; 16-lb shot put, John Kuck, Kansas City A. C.; pole vault, Lee Barnes, Hollywood A. C.; hop, step and jump, Levi Casey, Los Angeles A. C.; 56-lb. -weight throw, P. J. McDonald, New York A C ; discus throw Eric C W. Krenz, Olympic Club; Decathlon, Fait "Chief" Elkins, University of Nebraska; Pentathlon Harry Flippen, Newark A. C.; 10-mile run, Willie Ritola, Finnish-American A C.; 2-mile steeplechase, Willie Ritola, Finnish-American A. C ; 880-yard relay, New York A C.; 2-mile relay, Illinois A. C., Chicago, Ill.; 1-mile relay, Illinois A. C., Chicago, Ill ; 440-yard relay, Newark A. C.; 4-mile relay, Los Angeles A. C Los Angeles, Cal.; team champion, Illinois A. C., Chicago, Ill.; 15-mile run, Jacob Kaysing, unattached, St. Louis, Mo.; marathon, Clarence DeMar, Melrose Post, Melrose, Mass.

The Amateur Athletic Union title holders, indoors, follow:

60-yard run, Karl Wildermuth, Georgetown University; 300-yard run, Lancelot Ross Yale University; 600-yard run, George Leness, New York A. C.; 1000-yard run, Lloyd Hahn, Boston A. A.; 2-mile run, Willie Goodwin, New York A. C.; 70-yard high hurdles, George Guthrie, Illinois A. C.; 1-mile walk, Willie Plant, Morningside A. C.; running high jump, C. W. Major, St. Bonaventure College; standing broad jump, Harold Osborn, Illinois A. C.; standing high jump, Hans Hedberg, Chicago A. A.; 16-lb. shot put, Herbert Schwarze, unattached, Chicago, Ill.; 1⅞ medley relay, Illinois A. C., Chicago, Ill ; team champion, New York A. C.; Steeplechase, Ove Anderson, Helsingfors University; pole vault, Sabin W. Carr, Yale University.

The women title holders, outdoors, follow:

50-yard dash, Ella Cartright, Eureka, Cal.; 60-yard hurdles, Helen Filkey, Chicago, Ill.; 100-yard run, Elta Cartright, Eureka, Cal.; 220-yard run, Ellen Brough, Paterson, N. J.; 440-yard relay, Pasadena A. C., Pasadena, Cal.; running high jump, Catherine Maguire, St. Louis, Mo.; running broad jump, Eleanor Egg, Paterson, N. J.; 8-lb. shot put, Lillian Copeland, Pasadena, Cal.; javelin throw, Margaret Jenkins, Eureka, Cal ; discus throw, Lillian Copeland, Pasadena, Cal.; baseball throw, Margaret Jenkins, Eureka, Cal.

The women title holders, indoors, follow:

40-yard dash, Rosa M. Grosse, Toronto L. A. C.; running high jump, Mildred Wiley, Boston Swimming Association; standing broad jump, Katherine Mearls, Boston Swimming Association; 8-lb. shot put, Rena MacDonald, Boston Swimming Association; basketball throw, Eleanor Churchill, Boston Swimming Association; 440-yard relay, Paterson Recreation Club, Paterson, N. J.

The 51st annual championship track and field meet of the Intercollegiate Association of Amateur Athletes of America was held at Franklin Field, Philadelphia, the winner being Stanford University with a total of 36½ points. Penn State College finished second with 27 and Yale third with 23½. The University of Southern California, which had been victorious in both 1925 and 1926, had to be content with fourth honors, scoring 23 points. The individual winners with their colleges were:

100-yard dash, Charles Borah, Southern California; 220-yard dash, Charles Borah; 440-yard run, Fred Alderman, Michigan State; 880-yard run, Oliver Proudlock, Syracuse; mile run, William Cox, Penn State; 2-mile run, Russell Payne, Pennsylvania; 120-yard high hurdles, Eder Wells, Dartmouth; 220-yard low hurdles, Henry Steinbrenner, Stanford; high jump, Thomas Maynard, Dartmouth; broad jump, Alfred Bates, Penn State; pole vault, Sabin Carr, Yale; hammer throw, Marion Ide, Penn State; Elmer Gerken, California; javelin throw, Oreth Hines, Georgetown; discus throw, Clifford Hoffman, Stanford.

The Harvard-Yale versus Oxford-Cambridge meet held in London in July was won by the English collegians by 7 firsts to 5. The winners in the various events were:

100-yard dash, Miller, Harvard; 220-yard dash, Rinkel, Cambridge; 440-yard run, Rinkel, Cambridge; 880-yard run, Brown, Oxford; mile run, White, Oxford; 3-mile run, Smith, Yale; 120-yard high hurdles, Weightman-Smith, Cambridge; 220-yard low hurdles, Lord Burghley, Cambridge; shot put, Pratt, Harvard; high jump, tie for first between Pendlebury and Tweed, both of Cambridge; broad jump, Deacon, Yale; pole vault, Carr, Yale.

In the annual meet between Oxford and Cambridge, the latter scored an overwhelming victory with 9 firsts as against 2. In a dual contest between English and French athletes the former gained the victory.

ATOMIC WEIGHTS. See CHEMISTRY.

ATOMS. See ASTRONOMY; PHYSICS.

AUSTRALIA, COMMONWEALTH OF. A self-governing dominion of the British Empire, consisting of the six original states (formerly colonies) of New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania, together with the Northern Territory and the Federal Territory, and comprising the island continent of Australia with its dependencies. The present Commonwealth dates from its proclamation in 1901, under the act of union passed in the preceding year. Of the divisions mentioned above, the Northern Territory was transferred by South Australia to the Commonwealth; and the Federal Territory consists of a former portion of New South Wales. At the beginning of 1927 the seat of the government was at Melbourne, but on May 9, 1927, the new capital at Canberra was formally opened by the Duke of York. See below under HISTORY.

AREA AND POPULATION. The area of Australia is 2,974,581 square miles and the population according to the census of Apr. 4, 1921, 5,435,734. The population was estimated at 6,139,882 on Mar. 31, 1927. The accompanying table from a report of the Commonwealth Statistician and Actuary gives the area in square miles and the population according to the census of 1921, and also the estimated population by states on Mar. 31, 1927:

States and Territories	*Area* *sq miles*	*Population* *April 4, 1921*	*March 31, 1927*
New South Wales ..	309,432	2,100,371	2,360,826
Victoria	87,884	1,531,280	1,721,093
Queensland	670,500	755,972	885,741
South Australia	380,070	495,160	569,254
Western Australia ..	975,920	332,732	381,470
Tasmania	26,215	213,780	210,529
Northern Territory .	523,620	3,867	4,085
Federal Capital Territory	940	2,572	7,884
Total	2,974,581	5,435,734	6,139,882

The above figures do not include the full-blooded aborigines, whose number was estimated at 60,000. The figure for 1927 represents an increase of 122,593 during the year. Australia's net gain in population by immigration during 1926 amounted to 42,220, an increase of 2442 over the average for the past five years. Of the new arrivals, 71 per cent came from Great Britain, an increase of 44 per cent over the previous year's immigration from that source. Rural workers represented 38 per cent of the total number. During the same year there were 133,162 births, 56,952 deaths, and 47,865 marriages. The population of the capital cities with their suburbs on Jan. 1, 1927, was as follows: Sydney, New South Wales, 1,070,510; Melbourne, Victoria, 944,400; Brisbane, Queensland, 274,260; Adelaide, South Australia, 316,865; Perth, Western Australia, 184,223; Hobart, Tasmania, 55,130.

Education. At the end of 1925 New South Wales had 3216 government schools, classified as follows: High schools, 30; public primary schools, 1963; provisional schools, 547; half-time schools, 86; traveling schools, 1; evening continuation schools, 54; corresponding schools, 1; subsidized schools, 531; industrial and reformatory schools, 3. During the same year there were 336,810 children enrolled, and an average attendance of 269,214, and 10,777 teachers were employed. In the 696 private schools there were 66,486 pupils and 2783 teachers. Victoria had 2503 state schools with 6977 teachers, a total enrollment of 254,144 scholars and an average attendance of 171,382. Secondary education is for the most part under the control of either private persons or proprietory bodies, usually connected with some religious denomination. There were in 1925, 490 registered schools in Victoria, with 2163 teachers, and a net enrollment of 64,265 scholars. Queensland supported 1707 state schools, with 4227 teachers and an average daily attendance of 106,994 pupils. There were also 171 private schools, with 1037 teachers, and an average daily attendance of 21,694 pupils. In South Australia there were 1029 schools, 24 being high schools, 21 higher primary schools, and 14 woodwork centres; the number of children under instruction was 84,284. The private schools numbered 184 with 14,990 pupils. Western Australia had 810 government schools with 51,647 pupils enrolled, and an average daily attendance of 45,357; the private schools numbered 122, with an enrollment of 11,609, and an average daily attendance of 10,539. In Tasmania, nine-tenths of the primary teaching is at state schools and the secondary teaching is about equally divided between the state and private schools. In addition to the above there are various high and technical schools in all the states. The capital of each state is the seat of a university: Sydney (1926), 2611 students and 206 professors, etc.; Melbourne (1925), 2557 students; Brisbane (1925), 457 students and 55 professors, etc.; Adelaide, about 800 students in 1926; Perth, about 200 students; Hobart (1925), 236 students.

Production, etc. According to the U. S. Bureau of Foreign and Domestic Commerce, industrial activity in 1925–26 was considerably greater than in the preceding year, but all other lines of endeavor except bee and poultry farming slumped. More than 400 new factories were established and 11,000 additional workers employed. Extra capital invested in land, buildings, plants, and machinery amounted to £8,000,000. The output of all factories during the year reached £400,342,393 as compared with £380,843,986 in the preceding year, and the value added in process of manufacturing increased from £147,136,758 to £155,424,393. A favorable feature of the year's industrial activity was an increase of £334 to £338 in the amount added by each employee in the process of manufacture. The following table shows the development of Australian manufacturing during the years 1924–25 and 1925–26:

DEVELOPMENT OF MANUFACTURING IN AUSTRALIA

Item		*1924–25*	*1925–26*
Factories	number	20,795	21,242
Hands employed	.do..	439,949	450,920
Wages paid	.£..	81,360,021	86,724,683
Value of fuel used .	..do..	11,713,250	13,083,226
Value of material used	.do..	221,993,978	231,834,908
Value added in process of manufacture	...do..	147,136,758	155,424,259
Value of output of factories	.do..	380,843,986	400,342,393
Value of land and buildings	...do..	91,241,907	96,535,632
Value of plant and machinery	do .	109,242,900	112,278,150

Agricultural production fell in value from £107,163,000 to £89,267,000, particularly since droughty conditions caused a decline of 500,000 acres in the area cropped. Permanent employment was provided for 432,134 in the agricultural, pastoral, and dairying industries, and the value of implements and machinery used in these occupations was estimated at £43,000,000. The value of output for the agricultural, pastoral, and dairying industries amounted to £249,755,000, as compared with £279,126,000 in the preceding year. In the factories throughout the Commonwealth 450,920 workers were employed during 1925–26 against 423,134 on farms and ranches, even though 42 per cent of the area of Australia is still Crown Land. The sheep industry had a very prosperous year during 1925–26, owing to sound wool positions. Large gains in numbers of sheep were recorded by all of the States. The total at the opening of 1926 reached 103,563,218, the highest number since 1891, the record year, when 106,421,068 were reported. Wool production in 1925–26 amounted to 830,459,607 pounds, a record yield up to that time. Cattle and horses declined slightly in number, but pigs increased.

The mineral production for the calendar year 1926 declined slightly as compared with the previous year. Gold production reached a very low mark for the year. Coal mining, on the other hand, was active and gave employment to 30,457 persons out of a total of 54,999 in all branches of the mining industry. The value of all mineral production in 1926 was £23,951,000 as compared with £24,592,000 in 1925. Coal was the largest source of wealth, contributing £11,664,000; silver and lead were next, £4,931,000: gold, £2,209,000; and zinc and concentrates, £1,462,000.

The table on the following page shows the value of production and the contribution of individual activities, 1921–22 to 1925.

VALUE OF AUSTRALIAN PRODUCTION

Year	Agri-cultural Thousand £	Pastoral Thousand £	Dairy, poultry, and bee farming Thousand £	Forestry and fisheries Thousand £
1921–22 .	81,890	74,982	44,417	10,519
1922–23 ..	84,183	97,029	43,542	11,124
1923–24. .	81,166	110,075	42,112	11,866
1924–25 .	107,163	126,773	45,190	12,357
1925–26...	89,267	113,827	47,161	12,784

Year	Mining Thousand £	Manu-facturing Thousand £	Total Thousand £	Per capita value £	s.	d.
1921–22. .	19,977	112,517	344,302	62	9	11
1922–23...	20,316	128,118	379,382	67	6	11
1923–24...	22,232	132,732	400,183	69	12	0
1924–25...	24,646	137,977	454,106	77	6	3
1925–26...	24,592	148,256	430,387	71	16	6

Industrial disputes in Australia in 1926 numbered 360 and involved 113,034 workers, according to a report issued in December, 1927, by the Australian Bureau of Census and Statistics. Working days lost amounted to 1,310,261 and loss of wages to £1,415,813. New South Wales led all other states in the number of these disputes, with 256, involving 96,640 workers, and a loss in wages of £1,229,410. According to the report, the record for 1926 was gratifying as compared with former years, because of the small number of strikes and their comparative brevity. The loss in days, however, was the highest since 1920, indicating that disputes in 1926 involved larger bodies of workers.

COMMERCE. The following tables supplied by the Commonwealth Statistician show the value of direct oversea imports and exports for 1925–26 and 1926–27:

COMMERCE—VALUE OF DIRECT OVERSEA IMPORTS, 1925–26 TO 1926–27

States and Territories	1925–25 £	1926–27 [a] £
New South Wales	64,009,929	69,018,846
Victoria	50,327,055	55,559,214
Queensland	13,772,854	13,503,887
South Australia	14,079,788	15,456,427
Western Australia	7,896,174	9,447,412
Tasmania	1,518,210	1,736,853
Northern Territory	34,168	27,288
Total	151,638,178	164,744,927

[a] Preliminary figures.

VALUE OF DIRECT OVERSEA EXPORTS, 1925–26 TO 1926–27 [a]

States and Territories	1925–26 £	1926–27 [b] £
New South Wales	54,001,814	62,849,428
Victoria	33,107,576	34,682,813
Queensland	26,384,916	14,721,157
South Australia	19,450,144	17,018,796
Western Australia	12,611,631	18,073,922
Tasmania	2,970,226	2,396,496
Northern Territory	35,902	32,929
Total	148,562,209	144,775,541

[a] Goods destined for oversea countries are largely transferred from one State to another for transhipment to the oversea country. In this table such goods are shown against the State from which they were finally dispatched.
[b] Preliminary figures.

Wool represents Australia's greatest liquid asset for the payment of its purchases abroad and of the interest on its heavy burden of debt, the latter largely due to its participation in the World War. Of the total trade in exports for 1925–26 greasy wool alone was credited with over £56,495,000. Wheat is also an important factor. The rabbit, once classed merely as a destructive pest, has become a commercial asset through the great demand for its skin, the export value rising close to £3,000,000 per annum. The fur enters largely into the felt hat industry in the United States. Butter and other milk products, meats, minerals, coal, pearly shell, essential oils, hardwoods, hides, skins, and leather, fresh and dried and some canned fruits are also important export commodities. Australia has developed its secondary industries to some extent, but the lack of a home market and consequent inability to reduce manufacturing costs by mass production methods have prevented any appreciable export of manufactured articles, other than to New Zealand and the near-by Pacific island groups under British control. High tariff walls were having the effect of encouraging the establishment of branch plants of American and English manufacturers in Australia and there was likely to be a greater movement in this direction. Despite its small population the Commonwealth's purchases abroad amount to more than $120 per capita, and this in face of a tariff carrying but a limited free list and rising from 5 to 60 per cent. British goods enjoy a tariff preference, and, in the case of public purchases, a further sentimental preference which sometimes rises to 20 per cent, creating a sizable handicap when quoting on public works and supplies.

FINANCE. The revised budget estimates for the fiscal year ended June 30, 1927, as published by the Commonwealth Treasurer, indicated a larger surplus than was originally anticipated. The original estimates were expected to result in a surplus of only £149,381, whereas the revised estimates showed a probable surplus of £2,620,365, an increase of £2,470,984. As the accumulated surplus on hand June 30, 1926, amounted to £285,877, the total accumulated surplus of the Commonwealth Government as of June 30, 1927, probably approximated £3,000,000. The larger surplus anticipated by the Federal Government was accounted for by marked increase in revenues. The original budget estimates placed revenues at £75,131,150 while in the revised figures they totaled £78,162,349, or an increase of £3,031,199. The increase in expenditures as compared with the original estimates amounted to only £562,215. The principal items responsible for the increase in revenues were customs and excise duties, £3,052,769, and income tax, £620,265. On the other hand, miscellaneous revenues, which include such principal items as interest on loans for states and interest loans to states, showed a decrease of over £1,000,000. A comparison of the original estimates with the revised for the fiscal year 1926–27 appears in the accompanying table:

COMPARISON OF ORIGINAL AND REVISED ESTIMATES OF AUSTRALIAN GOVERNMENT FOR 1926–27—REVENUES

Items	Original £	Revised £
Customs and excise duties ...	40,500,000	43,552,769
Post and telegraph	11,441,000	11,648,744
Income tax	10,506,000	11,126,265
Land tax	2,811,000	2,615,898
Estate duties	1,850,000	1,862,851
Other taxes	850,000	887,808
Railways	499,000	477,732
Other revenues	8,174,150	7,040,787
Total	75,131,150	78,162,349

COMPARISON OF ORIGINAL AND REVISED ESTIMATES OF AUSTRALIAN GOVERNMENT FOR 1926–27—EXPENDITURES—*Continued*

Items	*Original* £	*Revised* £
War, repatriation and defense	34,019,906	34,005,339
Special appropriations:		
Interest and sinking fund .	1,152,000	1,135,449
Invalid and old-age pensions	9,000,000	9,149,836
Maternity allowance	675,000	655,030
Other special appropriations	1,186,735	1,288,478
Additions, new works, etc. ...	230,234	182,488
Payments to or for States ...	12,765,462	12,889,384
Expenses of departments	2,794,141	2,978,316
Miscellaneous services	464,904	635,424
Post and telegraph	11,294,480	11,306,500
Railways	963,368	913,355
Territories	435,539	407,385
Total	74,981,769	75,541,984

As the accompanying table shows, no notable increases were made in any of the items of expenditures. Among the payments to or for the states are included the capitation payments to states in accordance with the surplus revenue act of 1910. This act provided for the retention by the Commonwealth Government of the whole of the customs and excise duties and for the payment to the states of 25s. per head of population.

The public debt, excluding the debt on account of the states, stood at £370,566,484 on Dec. 31, 1926, as compared with £374,859,378 six months earlier. The war debt was reduced during the period by £3,560,439, and the debt for works and services by £732,455, or to a total of £4,292,894. The debt on account of the states on the other hand, increased by £7,364,177. The total debt of the Commonwealth Government, including the debt on account of the states, increased from £458,443,350 to £461,514,633 during the six-month period. A comparative statement of the debt as of June 30 and Dec. 31, 1926, is presented in the following table:

AUSTRALIAN PUBLIC DEBT AS OF JUNE 30 AND DEC. 31, 1926

Item	*June 30* £	*December 31* £
War debt	304,546,356	300,985,917
Works and other purposes .	70,313,022	69,580,567
Total Commonwealth .	374,859,378	370,566,484
Debt on account of States .	83,583,972	90,948,149
Grand total	458,443,350	461,514,633

Compared with the position as of Dec. 31, 1925, the Commonwealth war debt as of Dec. 31, 1926, showed a reduction of £8,663,700, but the debt for works and other purposes revealed an increase of £5,673,127.

COMMUNICATIONS. For a country of such limited population, transportation facilities are remarkably extensive. There remains still the unfortunate handicap of differing railway gauges, which increase the cost of interstate freight shipments and add considerably to the inconvenience of travel. Although the uniform standard gauge has been decided upon it will be many years before the handicap disappears. There was in 1927 under construction a connecting link, standard gauge, between Sydney and Brisbane, which would cut the running time probably six hours and would obviate the present necessity of changing trains at the border. The long contemplated north-south railway, through the heart of the continent, at last had been commenced. It will open up a section undeveloped but reported rich in resources and possibilities. Other lines contemplated include one linking up the loose ends of existing railways running inland from the Queensland coast. Had such a north and south line existed, it would have meant the saving of hundreds of thousands of sheep lost during the past year by reason of drought and lack of facilities for moving them from the affected regions to areas of plentiful water and grass.

An important event in the development of Australia took place late in January, 1927, when the first sod was turned at Oodnadatta for the extension of the railway from its existing terminus to Alice Springs, in approximately the geographic centre of the Commonwealth. This section forms an additional link in the railway route planned to connect Darwin on the north coast with Adelaide on the south coast, and will probably be a considerable factor in the settlement and development of the now practically uninhabited centre of the island continent.

The railway from Port Augusta to Oodnadatta, about 478 miles, had been in use for many years, the final section having been opened in 1891. The new line, to be approximately 291 miles in length, was to be completed by June 30, 1929, at an estimated cost, exclusive of rolling stock, of £1,700,000. Sixty-pound rails, rolled in Australia, and western Australia hardwood ties were to be employed. Contracts were let for rolling stock, engines and cars, all to be manufactured in Australian shops. The line was to be standard gauge, 4 feet 8½ inches, and the agreement between the Commonwealth and South Australia provides for the building of a direct connecting line of the same gauge between Port Augusta and Adelaide.

The railway between Port Augusta and Oodnadatta was given a valuation of £2,400,000. The loss on this line in 1925–26, including interest, was £205,038, and the new extension will for a long time show a considerable annual deficit. The outlay and the inevitable losses were considered justifiable, however, in view of the ultimate benefit of the rail connection between northern and southern Australia and the anticipated growth of population, with its accompanying development of the agricultural, pastoral, and mineral resources of the territory to be served. The Federal Government will control the line, as it does the short line running from Darwin to Katherine in the Northern Territory, something over 198 miles. This, like the present line from Port Augusta to Oodnadatta, is 3 feet 6 inch gauge; but it will probably be altered when the last link is provided, to permit a uniform gauge for the entire distance. The first 25 miles of the line is to be constructed departmentally by the Commonwealth Government, and the remainder of the line to Alice Springs is to be constructed by private contract through public tenders.

The annual report of the commissioners of the Australian State Railways for the year ended June 30, 1926, showed that the capital expenditures totaled £26,267,702, including lines under construction; this represents an increase of £1,923,649 over the previous year. The ordinary working expenses were £3,121,145 and the interest on capital, £1,195,108, the total of £4,316,253 showing a deficit for current operations of £54,079. Accumulated and deferred charges aggregated £3,982,314, showing a total accumulated deficit of £4,036,393.

The total number of the registered vessels in 1925 was 2234 of 406,363 tons. In the same year 1726 vessels of 5,596,400 tons entered the ports of Australia and 1723 vessels of 5,604,119 tons cleared. In 1925–26 the total tonnage entered was 5,303,805; cleared, 5,364,884. In the first nine months of 1926–27, 3,690,543 tons entered and 4,168,619 cleared.

GOVERNMENT. The executive power is vested in the king, who acts through the governor-general, assisted by an executive council of responsible ministers, who must be members of the federal parliament, comprising a senate and house of representatives. The senate consists of at least six members from each of the original states, elected for six years, one-half of whom are renewed every three years; while the house of representatives consists of approximately twice as many members as there are senators, the representation being in proportion to the population as shown at the last census. The number in the house in 1927 was 76. The governor-general in 1927 was Baron Stonehaven of Ury, and the ministry was as follows: Prime Minister and Minister for External Affairs, Stanley M. Bruce; Treasurer, Dr. E. C. G. Page; Vice President of the Executive Council, George F. Pearce; Home and Territories, William C. Marr; Attorney-General, John G. Latham; Postmaster-General, William G. Gibson; Trade and Customs, Herbert E. Pratten; Works and Railways, William C. Hill; Defense, Sir Thomas W. Glasgow; Health, Sir Neville R. Howse; Markets and Migration, Thomas Paterson; Honorary Ministers, Thomas W. Crawford and Alexander J. McLachlan.

HISTORY. Probably the outstanding event in the history of Australia for the year was the opening of the new federal capital at Canberra on May 9, with great pomp and ceremony, participated in by the Duke of York as representative of George V. The act of Parliament creating the Commonwealth of Australia (1900) provided that its permanent seat of government should be in territory granted to or acquired by the Commonwealth, and should be not less than 100 miles from Sydney. After years of consideration, Canberra, in the district of Yass, in the southern portion of New South Wales, was accepted as the most desirable site for the new capital. Located 209 miles from Sydney, 429 miles from Melbourne, 912 miles from Brisbane, and 2607 miles from Perth, Canberra is said to combine all the qualities of the ideal site. In March, 1913, the foundation stones of the new capitol were laid, with appropriate ceremonies, but the World War delayed its completion. The total area of the Federal Territory approximates 900 square miles. An area of 12 square miles is set apart for the site of the city proper, with further reservations of 100,000 acres for parks, boulevards, and roads, an extensive arboretum, and Duntoon Military College.

The new capital was laid out according to the design submitted by an American architect, Mr. Walter B. Griffin, of Chicago, and its pattern is strikingly suggestive, in general arrangement and outline, of that of Washington, D. C. Land in Canberra cannot be held in fee simple, the title always residing in the government. A maximum lease of 99 years, however, may be obtained by bid at auction. Buildings must be constructed in accordance with plans previously submitted for approval. The requirements of a large population have been considered, and no slum areas of any type will be permitted. To the end of 1927 more than £5,000,000 had been expended in the city and before the capital is finally completed many additional millions will be spent in beautifying it and making it comfortable. Once the seat of government has actually been moved and the actual migration has taken place, Canberra may be expected to grow very rapidly.

The interest of the early months of the year centred around the labor movement and the labor party which controlled practically every state of the Commonwealth. A tempest was stirred up early in the year over the question of the membership of a committee, known as the Australian Industrial Mission, consisting of representatives of employers, employees, and two women observers, which was to visit the United States and survey economic and industrial conditions, methods, and efficiency. The Trades and Labor Council was particularly incensed because the Commonwealth government refused to appoint representatives of employees nominated by the council. In some quarters of the labor movement a suggestion was made to call a general strike to prevent the departure of the committee as selected by the government but the majority of the labor element refused to heed the suggestion. The annual convention of the Workers' Union, held in January, threatened a general strike if the troubles in China embroiled the Commonwealth of Australia in any way.

In the latter part of February, the executive committee of the Australian Labor Party adopted a series of resolutions, which were aimed directly at any attempt on the part of communists or communistic doctrines to get the upper hand in Australian labor circles. The doctrine as enunciated bore a striking resemblance to that issued by the Labor Party of Great Britain and the frequent pronunciamentos of the American Federation of Labor. Several members of the Australian Labor Party were directly accused of being inoculated with Communist theories and "boring from within" in the interest of the more radical element. One member accused was actually serving with the cabinet of New South Wales. The premier of New South Wales, however, gave him a clean bill of health and maintained that he had supreme confidence in him and had never noted any direct or indirect attempts on his part to destroy the labor party of New South Wales.

In the summer, the prime minister, Stanley M. Bruce, announced the possibility of the appointment of a commission to study the Australian constitution and its practical workings as well as to make suggestions as to how it might be changed to meet the present economic, social, and political conditions. The general headings under which the commission would function along the lines mentioned above were aviation, company law, health, industrial powers, judicial powers, navigation law, taxation, trade and commerce, the interstate commission, and the admission of new states. Of course any change recommended would have to be approved by the parliament and the people before it would become operative.

An event of importance to the United States occurred on December 2 when Sir Hugh Denison, the Australian Commissioner to the United States, resigned, intimating that he had several important recommendations to make to Premier Bruce, which, if adopted, would change the entire system of representation between the two countries. Apparently he felt that the United States was not making sufficient allowance for the importance of Australia in the industrial and commercial world.

AUSTRIA. A republic of central Europe, proclaimed Nov. 12, 1918, after the revolution following the World War; boundaries defined by the Treaty of St. Germain, signed Sept. 19, 1919. It consists of the following nine provinces: the City of Vienna, Lower Austria, Upper Austria, Salzburg, Styria, Carinthia, Tirol, Vorarlberg, and Burgenland.

AREA AND POPULATION. According to the census of Mar. 7, 1923, the total area was 32,369 square miles and the population, 6,535,363 giving a density of 202 persons to the square mile. The area of the Austrian provinces before the World War was 39,012 square miles and the population, according to the census of 1910, 7,529,935. According to the 1923 census, the City of Vienna, which constitutes a province, had a population of 1,865,780, making up 28.55 per cent of the total number of inhabitants. The other chief cities with their populations on Mar. 7, 1923, were: Graz, 152,706; Linz, 102,081; Innsbruck, 56,401; Salzburg, 37,856; Wiener Neustadt, 36,956; St. Pölten, 31,619; Klagenfurt, 27,423; Steyr, 22,111; Mödling, 18,677; Villach, 22,070; Wels, 16,412; and Baden, 22,217. The movement of population in 1924 was: Births, 142,141; deaths, 98,055; marriages, 52,845; divorces (excluding Burgenland), 5508. The number of immigrants in 1925 was 4627.

EDUCATION. Elementary instruction is compulsory between the ages of six and 14, but exemptions are easily obtained for children of the age of 12 or over. In 1924 there were 5232 public and private elementary schools, with 29,200 teachers and 749,368 pupils. Secondary education is provided by gymnasia, realschulen, middle schools, and middle schools for girls. In 1924 there were 144 secondary schools of all types in the republic with 3437 teachers and 41,702 pupils. There are three universities maintained by the State, namely, Vienna, which has 811 teachers and 9905 students in 1924; Graz, 260 teachers and 2442 students; and Innsbruck, 183 teachers and 1565 students. There were also in 1924 two technical high schools; 36 training colleges for teachers; one theological high school; high schools for agriculture, mining, art, and music; and 12 theological colleges, of which 10 were for Roman Catholics.

PRODUCTION. The principal occupation of the country is agriculture. In 1925 the total acreage sown amounted to 4,741,165 acres. Of the total in 1925, 2,128,185 acres were in Lower Austria, and 991,150 acres in Upper Austria. The chief crops with their acreage and yield in metric tons in 1925 were: Wheat, 489,833 acres, 290,433 tons; rye, 959,923 acres, 550,088 tons; barley, 352,060 acres, 200,673 tons; oats, 769,135 acres, 388,433 tons; potatoes, 440,413 acres, 2,068, 422 tons; turnips, 126,713 acres, 1,341,138 tons. The foodstuffs produced are not sufficient to meet the needs of the population. The production of raw sugar in 1924–25 was 75,443 metric tons. The latest livestock census showed 282,651 horses, 1,074,864 cows, 302,103 oxen, 68,143 bulls, and 717,236 calves.

Austria was deprived of many of her mineral resources as a result of the World War but she still possesses minerals of considerable value. In 1925 the production of lignite was 3,026,519 tons, and of anthracite, 145,200 tons. The output of iron ore was 1,030,364 tons in 1925, and of pig iron, 379,921 tons. Some copper, zinc, lead, and salt (71,936 tons in 1925) are also produced. Piano making, the manufacture of motor cars, furniture, and textiles represent the only industries of any importance. The nine factories of the Austrian tobacco monopoly in 1925 made 187,074,000 cigars, 3,794,588,000 cigarettes, and 57,842 metric quintals of smoking tobacco.

COMMERCE. Austria is one of those countries which may normally be expected to show a trade deficit and yet maintain its economic equilibrium by other foreign income sufficient to offset its excess of imports over exports to some extent. It is said that a large part of the industries of the former Austro-Hungarian Empire are still owned in Austria and pay dividends to Vienna. The recovery of Vienna as a financial and commercial centre contributes important foreign revenue for services rendered. To this may be added the earnings on transit traffic, tourist trade, and remittances from Austrians abroad. The following table from an English source gives the essentials of Austrian foreign trade for the year 1926 (the figures are in pounds sterling):

	Imports £		*Exports* £	
	1925	*1926*	*1925*	*1926*
Live animals	7,587,000	7,704,000	814,000	640,000
Foodstuffs and beverages	22,383,000	22,442,000	1,076,000	930,000
Coal	6,657,000	5,960,000	11,454,000	10,668,000
Raw materials and semi-manufactured goods	18,168,000	16,250,000		
Finished goods	27,151,000	26,948,000	41,628,000	36,774,000
Gold and silver (also coined)	2,093,000	2,238,000	1,831,000	1,221,000
Total	84,039,000	81,542,000	56,803,000	50,288,000

FINANCE. The Austrian budget for 1928 (fiscal year is the calendar year) estimated total revenues at 1,631,000,000 schillings and expenditures at 1,595,000,000 schillings. There was to be in addition, an expenditure of 191,000,000 schillings of capital investment for railway electrification, improvements to road construction, and agricultural development. From 20 to 25 per cent of Austrian Federal revenues are derived from direct taxes, between 50 and 60 per cent from indirect taxes, and the rest from departmental revenues and profits of the government monopolies, particularly the tobacco monopoly. The most important single tax, an indirect one, is the sales tax, embracing practically all commercial transactions in the country. This tax alone produces one-fifth of the government's revenue. The organization and administration of this tax has been developed with skill and with satisfactory results, so that it has encountered practically no opposition in the country. The collection of this tax is carried out "at the source" so far as possible. The composition of Austrian revenues in the year 1925, based on closed accounts, and in the years 1926 and 1927, based on budget estimates, were as follows:

AUSTRIAN FEDERAL REVENUES

[*In thousands of dollars; conversion at 14.07 cents to the Austrian schilling*]

Item	*Actual, 1925*	*Per cent of total*	*Estimated 1926*	*Per cent of total*	*Estimated 1927*	*Per cent of total*
Customs duties and export fees	28,267	17.0	25,336	19.3	29,266	18.4
Consumption taxes	11,945	7.2	11,158	8.5	11,763	7.4
Direct taxes	40,163	24.1	28,576	21.7	36,730	23.1
Sales tax	31,784	19.1	28,140	21.4	29,828	18.8
Miscellaneous fees	17,398	10.4	11,345	8.3	13,514	8.5
Departmental revenues	13,606	8.1	3,714	2.8	11,115	7.1
Net revenue from monopolies	23,581	14.1	23,286	17.7	26,564	16.7
Total	166,744	100.0	131,555	100.0	158,780	100.0
Of which payable to Provinces	36,217	21.7	25,608	19.5	30,476	19.2
Balance to Federal Government	130,527	78.3	105,947	80.5	128,304	80.8

The general trend in taxation was toward a reduction of direct taxes and an increase of the indirect revenues. The principal source of direct tax revenue was the income tax; this was supplemented by the corporation tax and the general tax on earned income, both being levies on net income. More and more reliance was being placed, however, on the indirect sales tax, and it was probable that this will remain indefinitely as the backbone of the Austrian taxation system. Customs revenues likewise increased steadily in recent years and, owing to the protective tariff policy, which the government was pursuing, it was probable that the present important rôle held by the customs revenue would be maintained indefinitely.

COMMUNICATIONS. Austria has approximately 4114 miles of railway lines, of which 3639 miles were operated by the State and 475 miles by private companies. The item of chief interest in connection with Austrian railways during 1927 was a discussion of the electrification programme. One of the most important undertakings in Austria was the proposal to extend the programme of railway electrification initiated in 1920 and scheduled for completion in its present form by the end of 1928. According to a plan worked out the recommendations include the addition of lines between Vienna and Salzburg, Vienna and Graz, and the Tauern Railway. The total length of these lines amounts to 605 kilometers and the annual consumption of coal to 540,000 metric tons. This group includes two very important main lines, Vienna to Salzburg and Vienna to Graz. These two lines show an average annual traffic per kilometer of 7,100,000 and 6,300,000-ton kilometers respectively, as compared with an average annual traffic per kilometer of 3,500,000-ton kilometers on those lines included in the previous electrification programme to be completed by the end of 1928. These two lines carry about double the amount of traffic of those lines completed and under construction, and are estimated to involve an expense of approximately only 20 per cent in excess of the cost per kilometer of the latter. The supply of electric power would be covered in part by the Vienna, Upper Austria, and Styrian power plants, so that only a portion of the current needed would have to be produced in new plants to be constructed by the Austrian Federal Railways.

In October, 1927, the U. S. Bureau of Foreign and Domestic Commerce quoted from the first published report of the Austrian Federal Railways following their establishment as an autonomous concern in 1923. The report furnished rather limited financial and operating details regarding the railways during 1925, as follows: The length of the Austrian Federal Railways at the close of 1925 totaled 4864 kilometers, of which 1479 kilometers were double-track. In addition to this mileage, the Federal Railways were operating, for the account of private owners, 944 kilometers of additional track. Operating revenue during the year amounted to $75,200,000 ($67,000,000 in 1924) and operating expenses to $71,760,000 ($65,000,000 in 1924). The rolling stock in operation at the close of 1925 comprised 2611 locomotives, 5833 passenger cars, 32,693 freight cars, and 1836 service and mail cars. The condition of the rolling stock depreciated greatly during the war and shortage of funds had made it impossible for the railway administration to restore it to efficient normal conditions. Severe inroads on the quantity of rolling stock were made by the peace treaty in favor of the newly organized national systems in the surrounding countries, so that there was an actual shortage of rolling stock in addition to the fact that the existing equipment was in an abnormally low state of repair. Passengers carried during 1925 numbered 117,091,025 and freight carried (not including freight charged by the piece or service freight) totaled 25,282,611 tons. In 1925 passenger tariffs calculated on a gold basis amounted to approximately 87 per cent of the pre-war level, while freight rates amounted to 107 per cent of the pre-war rate. Since 1925 there had been increases in both passenger and freight tariffs, putting the former on an approximately 100 per cent basis and the latter 112 per cent of the pre-war rates.

Shortly after the War lack of coal within the country and other factors of national importance led the Austrian Government to start an extensive programme of railway electrification with which considerable progress has been made. The electrification work was being confined to the mountainous area in the western part of the country; funds for this purpose were advanced in part by the Federal Treasury, but principally came from the international League of Nations loan to Austria. At the end of 1925, 444 kilometers of the State railways had been electrified. With the completion of electrification work under way, the railways would have at the end of 1928 some 623 kilometers under electric operation, of which 300 kilometers would be double-track lines. With the completion of this programme and the extensive electrification being carried out in Switzerland, electric traction will handle the entire service from Salzburg westward to Zurich, Berne, and the principal parts of Switzerland. Electrification in Bavaria, Germany, was likewise proceeding and will eventually connect up with the Austrian system.

Government. Under the provisions of the constitution which went into operation on Nov. 10, 1920, Austria was declared to be a federal republic. A president is chosen for four years by the two houses of the legislature. He may not be reëlected more than once. The legislature is bicameral, comprising an assembly (Nationalrat) and a First Chamber (Bundesrat). The powers of the latter body are advisory. President in 1927, Dr. Michael Hainisch (elected in 1920 and again in 1924). The ministry was constituted on Oct. 20, 1926, as follows: Federal Chancellor and Minister of Foreign Affairs, Dr. Ignaz Seipel (Christian Socialist); Vice Chancellor, Dr. Franz Dinghofer (Pan German); Social Welfare, Dr. Joseph Resch (Christian Socialist); Agriculture, Andreas Thaler; Finance, Dr. Victor Kienbock; Commerce and Communications, Dr. Hans Schuerff; Education, Dr. Richard Schmitz; Defense, Karl Vaugoin.

History

Situation at the Beginning of the Year. Dr. Seipel, who came into office after the fall of the Ramek government in October, 1926, was faced with a Socialist minority in parliament which seemed at the beginning of the year to cause him considerable worry and to be more in control of the situation than his own Christian Socialist and Pan German coalition. The opposition's fight on the government's scheme for old age and invalid insurance was so successful that Dr. Seipel virtually admitted defeat and requested the Socialist leader, Dr. Otto Bauer, to state definitely whether he preferred to hold new parliamentary elections in the spring or wait until the fall when the present parliament would retire anyhow. A most unusual statement on his part was to the effect that an election held in the summer months would not effect the true opinions of the people inasmuch as the farm laborers would scarcely be able to vote and many of the urban workers would be out of the cities on vacations. Dr. Bauer expressed the desire to hold the elections in the spring. For a time conditions appeared very ripe for an internal clash when the government raided the Vienna arsenal and confiscated more than 1000 firearms, which government circles held to belong to the Socialists. The latter seemed very incensed at this charge and threatened to mobilize their so-called guard, with the possibilities of strikes and bloodshed following such action. A parliamentary compromise at the last moment led to a smoothing over of the affair, in the course of the debate on which the Socialist leaders denied ownership of the arms in the legislative chamber.

The Elections. The campaign for the election of new members to the parliament began early in March and was on the clear cut issue of the Socialist programme versus the conservative middle class programme of Dr. Seipel and his Christian Socialist and Pan German parties. The government severely attacked the administration of the city of Vienna which was entirely in the control of the Socialists and which had the most advanced social attitude of any city in Europe. The Socialists had built almost 40,000 apartment houses for workers which were rented at an extremely low rate and had made attempts to aid the workers by establishing maternity clinics and granting clothing, etc., to mothers after the arrival of babies. The Seipel group resented this spending of money and appealed to the people on the ground of retaining as much of the good old capitalistic ideas as possible, particularly the high protective tariff.

The final results of the election, which was held on April 24, gave the Seipel coalition a clear majority in the Parliament, by a vote of 94 to 71. They lost three seats, however, but, if the coalition held together, they could easily outvote the Socialist minority. The Communists failed to gain one seat and their total of votes (70,000) represented a loss of 20,000 from the last election held in 1923. The total vote cast was 3,607,856, representing 96 per cent of the voting list and more than half of the population of Austria. The Seipel group, which won about 60 per cent of the votes cast, had its greatest strength in the rural districts. Obviously the Socialists were strongest in the cities. The only change in the cabinet was the substitution of the Farmer deputy, Yarl Hartleb, as vice-chancellor in the place of Franz Dinghofer.

Union With Germany. The question of an economic and political union with Germany was very much to the fore during the course of the year. As noted in the preceding Year Book, Chancellor Seipel was considered as being very cold to the proposition largely because of his Roman Catholicism, which, naturally, would much prefer a close union with Catholic Italy than with Protestant Germany. He was confronted, however, with virtually a united parliament on the question of an economic, to be followed by political, union with republican Germany. Being an astute politician, Dr. Seipel bowed to the will of the majority, and in his opening address to the new Parliament enunciated his doctrines concerning such a union. He stated that the government would work to such an end, and that it would probably present a scheme for political union to the League of Nations for official action. He felt, however, that an economic union should precede political union, and, in conformity with this belief, he instigated and held a conference with several leading German industrialists, who had made a survey of Austrian industrial possibilities. The outcome of this meeting was the adoption of a plan whereby a joint commission should be appointed to devise ways and means for Germany to help Austria industrially and financially without conflicting with the field of politics. The results of the studies of these commissions, of course, would have to get the separate approval of the governments of the two countries.

Disorders. In the press from time to time appeared accounts of serious disorders and riots in the grounds of the University of Vienna. While in many instances they were of anti-Semitic origin, they often took on the aspects of a struggle between the conservatives in general on one side and the Socialists and Jews on the other. Anti-Jewish rules and regulations were adopted by the authorities of the university, which resulted in several riots of fairly large dimensions. The oppressed students appealed to the Socialist government of Vienna, which gave police protection to the Jews and Socialists (often one and the same), even going into the grounds of the university to do so, thus violating a centuries-old custom that the students were to maintain their own discipline on university grounds and the police were not to enter university property for the purpose of enforcing discipline.

Of a more serious nature were the widespread riots throughout the entire city of Vienna during the second week of July, during the course of which hundreds were wounded, government buildings destroyed and records burned. A general strike added to the confusion, and it seems that only a miracle prevented the tearing of Austria apart by civil war. The cause of the outburst was the acquittal of three Austrians, who were charged with the murder of two Socialists in an outbreak in the Burgenland in February. Practically all Socialist Austria believed the accused guilty, and when the verdict was brought in they wreaked their rage on the Ministry of Justice Building, which was practically burned to the ground. The Socialists claimed that the murders were committed by Austrian Fascists, who were allowed to carry on a campaign of terror throughout the country because they felt secure from court action because the courts, themselves, were honeycombed with conservative Fascist ideas. Events in Austria from time to time certainly seem to justify the Socialist contentions. Although the government was successful in breaking up the ominous July riot, it must have been severely shaken, and the reverberations in the press of other European countries must have made it realize that its future depended in a very large degree upon the establishment and maintenance of an orderly stable government. One of the first steps taken by the government in the interest of future control of such outbreaks was the arming of the police of Vienna with revolvers, rather than with the sword, which had proved so ineffective. Needless to say the Socialists keenly resented this move and declared that it merely proved their contention that the minority, which heretofore had been able to parade any time it desired, was now to be cowed by guns and ammunition.

About the middle of November Chancellor Marx and Foreign Minister Stresemann of Germany visited Austria officially. The question of union of any kind between the two countries was not discussed, although the Germans pleaded for harmony between the two nations as far as the League of Nations was concerned, stating specifically that the Austrian representative at Geneva, Count Mensdorff-Pouilly, was more pro-British than pro-German in his actions and statements.

AUTHORS' LEAGUE OF AMERICA. A national organization of authors, artists, dramatists, and screen writers; founded on incorporated in 1912, for the purpose of: Procuring adequate copyright legislation, both international and domestic; protecting the rights and property of all those who create copyrightable material; advising all such in the disposal of their productions and obtaining for them prompt remuneration therefor; disseminating information among them as to their just rights and remedies. The League supplies confidential information relating to publishers, theatrical and motion picture producers, art buyers, and other persons and companies engaged in the purchase, sale, publication, or production of copyrightable material. The League is divided into four departments or guilds; the American Dramatists, the Authors' Guild, the Guild of Free Lance Artists, and the Screen Writers' Guild. The officers for 1927 were: President, Owen Davis; vice president, Arthur Train; secretary and treasurer, Louise Sillcox. The headquarters of the League are at 2 East 23rd Street.

AUTOMOBILE INSURANCE. See INSURANCE.

AUTOMOBILE RACING. Peter de Paolo of Los Angeles, Cal., holder of the championship in 1925, was pronounced the winner of the American Automobile Association Speedway championship in 1927. His total number of points was 1440. Frank Lockhart was second with 1040 points and George Souders, a Purdue University student, third with 1000. Souders won the 500-mile Indianapolis Sweepstakes which incidentally was witnessed by 145,000 persons, the largest crowd to attend any sports event of the year. Souders also finished first in the 200-mile Altoona race and in contests held at Toledo and Syracuse.

Major H. Seagrave of England set a new record of 1 hour, 55 minutes, 18 seconds for 150 miles at Daytona Beach, Fla., March 29, averaging 203.79 miles per hour for three miles.

AUTOMOBILES. The American automobile industry in 1927, while it did not approach the production figures of 1926, nevertheless, in many respects enjoyed one of the most important years it had ever experienced. This was due to the extensive preparations which practically all of the larger companies were making for an active production year in 1928 and vast sums were being spent in factories and equipment, not only in the United States and Canada, but in the foreign field. The shutting down of the Ford Motor works in preparation for their newly designed car restricted their output materially and also diminished the total figures for the year.

At the end of 1927 the National Automobile Chamber of Commerce, through its general manager, Alfred Reeves, submitted its usual statement of preliminary facts and figures for the automobile industry in that year. The production for the year was estimated at 3,530,000 cars and trucks, of which 3,066,000 were cars and 464,000 were trucks. Of the production of cars 2,452,000, or 80 per cent of the total number were closed cars. The wholesale value of cars manufactured during the year was given as $2,190,000,000, and the wholesale value of trucks $366,750,000, making a combined wholesale value of cars and trucks of $2,556,750,000. The average retail price of the cars sold in 1927 was $953; the average retail price of trucks was $1,053. The tire production of the year was 66,000,000 and the wholesale value of motor vehicle tires for replacement was $595,000,000. The wholesale value of parts and accessories for replacements and also service equipment, was estimated at $750,000,000.

In 1927 the motor vehicle industry and allied lines gave employment to 3,675,000 people, while the taxes on motor vehicles amounted to $725,555,812. In 1927 the world's registration of motor vehicles was estimated at 28,900,000, of which 23,125,000, or 80 per cent, were registered in the United States. Of this number according to the State reports 20,140,000 were motor cars and 2,985,000 were motor trucks. The motor vehicle registration on American farms amounted to 4,700,000 and of 3,006,081 miles of highway in the United States, 575,000 were surfaced.

In selling the new cars, 58 per cent were sold on time and 55 per cent of the new trucks were thus sold. The average note for new cars at the time of purchase was $574, and for used cars the average note at time of purchase was $286. For new trucks the average note given at the time of purchase was $840. Naturally the automobile had an important relation to other forms of business in the United States, for some 3,125,000 carloads of automotive freight were shipped over American railways in 1927, while of the rubber imported, the automobile industry used 84 per cent. In the plate glass industry 50 per cent of the output was taken by the automobile industry, while 12 per cent of the copper produced in the United States and 14 per cent of the iron and steel were similarly utilized. In 1927 American motor vehicles consumed 9,697,000,000 gallons of gasoline and 390,000,000 gallons of motor oil. The crude rubber used in tires in 1927 was estimated at 630,000,000 lbs. and the cotton fabric so used, at 219,000,000 lbs.

The motor bus continued to be an increasing factor in American transportation and 90,000 were in use, the production of the year being estimated at 11,500, and 14,400 consolidated schools were using motor transportation and 379 street railways were using motor buses, 8600 being thus employed. Sixty steam railways were using 1175 motor buses and 58 railways were using motor trucks as a part of their shipping service, gasoline rail motor coaches on short lines being used by 199 railways.

During the year motor vehicles having a value together with parts and tires estimated at $507,500,000 were exported, and the increase for 1927 over that of 1926 was 12 per cent. Fifteen per cent of the total production was exported. Imports of motor vehicles totaled 660. The motor vehicle retail business in the United States was distributed between 52,592 car and truck dealers, 52,086 public garages, 85,983 service stations and repair shops and 67,753 supply stores.

With 23,000,000 motor vehicles on American highways it was estimated that over 3,000,000 of these would need to be replaced each year, so that the motor industry was looking forward to continued prosperity. At the same time there was a general tendency for the average family to have more than one car and even for each adult member to have his own car. This was due to the fact that motor transport was essential in many regions where it was the only method of communication and this was particularly true in rural communities, where as a matter of fact, 56 per cent of the motor cars were owned in places of 10,000 population or less.

In 1927 for the third successive year the production of motor trucks in the United States and Canada was considerably in excess of 450,000, though the output, 464,000, showed a decrease from 1926 when it was 591,353 and 1925 when it was 473,154. On Jan. 1, 1927, some 2,700,000 motor trucks were in use, while the bus registration at the end of 1927 was estimated at a total of about 90,000 units, as compared with 80,000 the year previous.

During the year there was a demand for high-speed pneumatic tire vehicles, this being due not only to the natural demands of traffic, but also to the insistence of State motor vehicle commissions in many jurisdictions that trucks must keep up with and not retard the flow of other traffic on the highways. Figures compiled during the year indicated that professional hauling was only a small proportion of the truck operating industry and that 82 per cent of all trucks were owned by shippers, while 11 per cent were owned for use under private contract with shippers, and 7 per cent were owned by professional haulers, this last group being divided between a small number operating regularly between fixed points at fixed rates, and on fixed schedules. The larger number were in the general trucking business, although often covering a more extensive area than the former city teamsters and draymen. As indicating the leading uses of motor trucks a study of 1,300,000 trucks used in these fields afforded the following results:

R. F. D. owners	248,296
Groceries, food products	147,810
General contractors	83,853
Auto accessories	78,262
General trucking	70,735
Oils and gasoline	55,428
Lumber and logging	50,976
General merchandise	49,465
Meats and packing	40,074
Bakeries	40,058

During the year some progress was made on the difficult problem of regulation of the bus business, so as to prevent excessive competition among bus operators and yet obtain for the public the advantage of flexible motor vehicle transportation. State regulation statutes were passed in Arkansas, Missouri, Nebraska, and Texas, during the year, so that in 44 States there was some form of regulation. Up to the end of the year no bills had been passed by Congress for the regulation of interstate bus traffic, although a number were presented and the subject was under consideration by various groups, in efforts to secure fair and suitable legislation. The Interstate Commerce Commission was carrying on an investigation into the relation of truck and bus operation to the business of the railroads but no report had been presented up to the end of the year.

NEW FORD MODEL. The most important development of the year in many respects was the announcement of the Ford Motor Co., that they had decided to abandon the former Model "T" engine and car and develop an entirely new design which they would manufacture along the same lines in which they had been so successful in the past. The new car, which was displayed in December, had a 40-horse power engine capable of driving the car at a speed of 65 miles per hour, 4-wheel brakes, standard gear shift, and hydraulic shock absorbers. The bodies were of steel construction, the only wood being strips attaching the interior trim and in the soft roofing of the closed cars. The cars were finished in two-tone color combinations and in appearance were considered most attractive. The engine was of entirely new design with a bore 3-⅞ in., or

⅛ in. larger than the older model, and a stroke of 4-¼ in., or ¼ in. greater. This was a 4-cylinder engine and at 2200 revolutions per minute developed 40 horse power, though rating for license purposes at 24.03 horse power. The Model "A" Ford, as the new car was known, was supplied with larger balloon tires, heavier and better balanced springs, and hydraulic shock absorbers, while many of the parts which previously had been bolted together were now welded so as to eliminate many sources of noise and to give greater durability. A new oiling system which was a combination of pump splash and gravity feed was installed, while cooling was secured by a centrifugal water pump and a large radiator. A new ignition was developed. The new Ford transmission was of the selective sliding gear type with standard shift affording three speeds forward and one reverse. The main shaft ran on ball bearings and the centre shaft on roller bearings, and the gears were made of heat-treated chrome steel.

After the announcement of the new Ford cars, the General Motors Co. published a statement regarding the development of their Chevrolet car, which in many respects was considered as a competitor of the Ford, although selling at about $100 advance over the new type. This car had a longer wheel base, with 4-wheel brakes and a new type of body and radiator. The new line was placed on the market at the end of the year with a price reduction ranging from $10 to $50 on the different styles. In 1927 over 1,000,000 of these cars had been built.

In connection with the question of installment selling in the motor industry a notable study was published during the year entitled, *The Economics of Installment Selling: A Study in Consumers' Credit*, by Prof. E. R. A. Seligman, Professor of Economics at Columbia University. This work, which was extensively discussed. developed the conclusion that installment selling would do for the consumer what the old banking system had done for the producer and with proper safeguards and restrictions it would prove "one of the most signal contributions of the twentieth century to the progressive creation of national wealth and national welfare" and that the dangers and abuses would shortly disappear.

AUTOMOBILE TAX. See Roads and Pavements.

AVIATION. See Aëronautics.

AVIATION, Naval. See Vessels, Naval, and Naval Aviation; Naval Progress (remarks on aviation under the head of each nation.)

AVOGADRITE. See Mineralogy.

AYER, Edward Everett. American lumberman and museum patron, died at Pasadena, Cal., May 3. He was born at Kenosha, Wis., Nov. 16, 1841, and in 1860 crossed the plains to the Pacific Coast, later serving in the United States army in wars against the Apaches and other Indian tribes in California, Arizona and New Mexico. Establishing a lumber mill at Flagstaff, Ariz., he acquired forests and timberlands in various sections of the Southwest, and became a pioneer in supplying cross-ties to American railways, furnishing ties for most of the transcontinental railways centring in Chicago. In addition to his business activities, he became a patron of various museums in Chicago, donating to the Newberry Library of that city a collection of books on the history of the North American Indian which was one of the most nearly complete of its kind. He also donated ornithological and ichthyological libraries, a great pewter collection, and a collection of Indian accoutrements to the Field Museum of Natural History in Chicago. Actively interested in this museum, of which he was a director, he served as its president, 1893–98. He was also a director of the Art Institute of Chicago and a member of the League to Save the Redwoods in California, serving as a member of the governing board of that organization. He was also active in historical studies. Mr. Ayer was said to have been the first man to make an automobile trip across the Sahara desert.

AZERBAIJAN, a′zēr-bī-jan′. A new state constituted in 1918, consisting chiefly of the two former Russian provinces of Baku and Yelisavetpol; bounded on the east by the Caspian Sea, on the west by Georgia and Armenia, on the south by Persia, and on the north by Georgia, Northern Caucasus, and Daghestan. The official name of the state is the Azerbaijan Socialist Soviet Republic. Area, about 333,970 square miles and the population, according to official Russian figures, about 2,096,973, of whom 75 per cent are Moslem. Baku, the centre of the petroleum industry, is the capital and has a population of approximately 447,000. In 1925–26 134,855 pupils attended primary and secondary schools. There were also trade-technical schools; teacher-training centres, higher educational institutions, and workers' faculties. The oil industry, in 1925–26, had an estimated production of 336,000,000 poods. After the outbreak of the Russian Revolution in 1917, Azerbaijan, Armenia, and Georgia formed a federation, but this broke up after a few weeks, when the three constituent elements each declared its independence. Two months after the *de facto* independence of Azerbaijan was recognized by Great Britain in 1920, the Bolsheviks overthrew the government and thenceforth the government was under Soviet control.

BADEN, bä′den. A constituent state of the German Republic, with a republican form of government since Nov. 22, 1918; formerly a grand duchy in the German Empire; bounded by Bavaria on the east and Alsace-Lorraine and the Palatinate on the west. Area, 5819 square miles; population in 1925, 2,312,462, as compared with 2,195,580 in 1919. Capital, Karlsruhe, with 145,694 inhabitants in 1925. The largest city is Mannheim with 247,486 inhabitants in 1925. Of the total population of the state in 1925, 1,115,477 were males and 1,196,985 females. The majority of the population is Roman Catholic. Education is free, general, and compulsory, the schools being under the jurisdiction of the state. For higher education there are universities at Heidelberg and Freiburg. In 1926 the total area under cultivation was 2,098,142 acres. Among the agricultural products, oats, rye, barley, wheat, potatoes, and vegetables are the most important. 32,102 acres were planted to the vine in 1925 and the yield of wine was 6,315,302 gallons. In 1926, 10,000 acres were under tobacco. In 1925 there were 621,267 cattle, 412,533 pigs, 50,860 sheep, 160,897 goats, 68,194 horses. The budget for 1926–27 fixed the ordinary revenue at 228,080,000 gold marks and the ordinary expenditure at 219,700,000 gold marks.

The present constitution dates from Mar. 21, 1919, and vests the executive power in a cabinet comprising the state president, five ministers, and three state councilors without portfolios, all of whom are elected by the legislature. Legislative power resides in a single chamber body known as the Landtag. The constitution abolishes all privileges of birth and religion and under it women are endowed with the same rights as the men, bring eligible to all public offices. There is universal suffrage for all persons of either sex over 20 years of age. The initiative, referendum, and proportional representation have been introduced. The Landtag, elected on Oct. 25, 1925, for the term ending Oct. 25, 1929, had 72 members distributed among the several parties at the beginning of 1927 as follows: Centre, 28; Socialists, 16; German Democratic party, 6; Right, 9; German People's party, 7; Communists, 4; Economic Union, 2. State president at the beginning of 1927, G. Trunk, who also held the post of Minister of Justice. Dr. F. J. Schmitt was Minister of Finance, A. Remmele, Minister of the Interior and O. Leers, Minister of Religion and Education.

BAHA'MAS. A group of islands north of the British West Indies, off the southeast coast of Florida, 29 in number, of which 20 are inhabited. They also include 661 keys and over 3000 reefs. The islands, which are of coral formation, have an area of 4404 square miles and a population, according to the census of 1921, of 53,031. The estimated population on Jan. 1, 1925, was 55,423. The important islands, with their populations in 1921, are as follows: New Providence, containing the capital, Nassau, 12,975; Andros, 6976; Eleuthera, 6048; Long Island, 4659; Abaco, 3993; Exuma, 3730; St. Salvador, 4273. Elementary instruction is compulsory from the ages of 6 to 14. For the calendar year 1925, the exports totaled £481,000, and the imports, £1,761,000. The principal exports were sisal, sponge, lumber, tomatoes, shells, and preserved pineapples; principal imports, foodstuffs, spirits, raw materials, and manufactured articles. In 1924–25 the revenue was £420,077 and the expenditure, £415,577. The public debt in 1925 was £17,861. Ship entries in 1924, 1258 vessels of 624,205 tons (440 British of 250,199 tons); clearances, 1267 vessels of 629,112 tons (470 British of 254,689 tons). The islands are administered by a governor who is assisted by an executive council and a legislative council, each of nine members and a legislative assembly of 29 members, the franchise being based on a small property qualification. Governor and Commander-in-chief in 1927, Maj. Charles William Orr.

BAKER, Charles Fuller. American educator, dean of the College of Argiculture of the University of the Philippines, died at Manila, July 21. He was born in Lansing, Mich., Mar. 22, 1872, and was a brother of Ray Stannard Baker, the author, and Hugh Potter Baker, the forester. He studied at Michigan Agricultural College and Stanford University, becoming a teacher of zoölogy and being connected with various American educational institutions. In 1912 he went to the Philippines, where he founded the Los Banos Agricultural College, which was connected with the University of the Philippines and was said to be the only institution of its kind in the Far East, having a student body of more than 5000. While at Los Banos he assembled a collection of more than 50,000 specimens of insects for the agricultural college, in addition to large collections for the Universities of Berlin, London, Madrid, Paris, Moscow and Vienna. He was an enthusiastic collector and worker, spending his means and vitality in scientific research.

BAKU. See Azerbaijan.

BALCH, Thomas Willing. American author and lawyer, died at Philadelphia, Pa., June 7. He was born at Philadelphia, Pa., in 1869, and graduated at Harvard in 1890. Later he studied law at the University of Pennsylvania, graduating in 1895. He engaged in the practice of law at Philadelphia, specializing extensively in international law and international relations, as well as in matters of history. His more important works include: *Some Facts About Alsace and Lorraine* (1895); *The Brooke Family of Whitchurch, Hampshire, England* (1899); *The Alabama Arbitration* (1900); *Émeric Crucé* (1900); *The Alasko-Canadian Frontier* (1902); *The Alaska Frontier* (1903); *English Ancestors of the Shippen Family and Edward Shippen of Philadelphia* (1904); *The Swift Family of Philadelphia* (1906); *Balch Genealogica* (1907); *L'Évolution de l'Arbitrage International* (1908); *La Question des Pêcheries de l'Atlantique: un Différend entre les États-Unis et l'Empire Britannique* (1909); *The Arctic and Antarctic Regions and the Law of Nations* (1910); *Différends Juridiques et Politiques dans les Rapports des Nations* (1914); *Arbitration as a Term of International Law* (1915); *The United States and the Expansion of the Law Between Nations* (1915); *The Philadelphia Assemblies* (1916); *A World Court in the Light of the United States Supreme Court* (1917); *and Legal and Political Questions Between Nations* (1924).

BALDWIN, George Johnson. American engineer, and active in shipping circles and the development of public utilities in the southern United States, died at Baltimore, Md., March 4. He was born at Savannah, Ga., Aug. 18, 1856, and after taking a special course in mining engineering at the Massachusetts Institute of Technology became chemist for the Woodstock Iron Company at Anniston, Ala., 1887–78, and superintendent of the Bradley Gold Mine, Nacoochee, Ga., 1878–79. In the latter year he became interested in the firm of Baldwin & Company, cotton factors and dealers in fertilizers at Savannah, Ga., being a partner 1880–81. In 1887 he organized the Baldwin Fertilizer Company, serving as its president and general manager until 1894, and in 1898 became associated with the engineering firm of Stone & Webster of Boston, Mass., organizing many Southern public utility companies to manage and operate various light and power utilities. In 1917 he became president of the Pacific Mail Steamship Company, and was chairman of the board of the New York Shipbuilding Company and the American International Shipbuilding Company, which built the Hog Island shipyard and many ships during the War. He organized the Edison Company of Savannah, which afterwards merged with the Savannah Electric Company, and was instrumental in developing light, power and electric traction at Jacksonville, Tampa, Pensacola and Key West, Fla. At the end of the War the American International Corporation went into South America, where a number of municipal projects which had become disorganized during the War were revived. Mr. Baldwin was active in social, educational and charitable enterprises. He was a founder member of the National Marine League, and a member and manager of the American Bureau of Shipping.

BALDWIN, Simeon Eben. American jurist and Governor of Connecticut, 1911–15, died at New Haven, Conn., January 30. He was born at New Haven, Conn., Feb. 5, 1840, the son of Roger Sherman Baldwin and Emily Perkins Baldwin, and after graduating at Yale in 1861 studied law at Yale and Harvard, being admitted to the bar in 1863. In addition to practicing, he was instructor in law and professor at the Yale University Law School from 1869 until 1919. As early as 1873 he was a member of a commission to revise the general statutes of the State, and in 1879 he was a member of the commission for simplifying its legal procedure. In 1885 was a member of a commission for devising a better system of taxation, and drew up its report. In 1893 he was appointed associate justice of the Supreme Court of Errors of Connecticut, and in 1907 became its chief justice, serving until 1910. He was Governor of Connecticut for two successive terms, 1911–15. After the expiration of the second term he became chairman of a committee to revise the taxation system. In 1890 he was president of the American Bar Association, in 1897 of the American Social Science Association, and from 1899 to 1901 of the International Law Association. From 1894–96 he was president of the New Haven Colony Historical Association, and he was also at various times president of the American Historical Association, the Association of American Law Schools, the Connecticut Society, the Archæological Institute of America, the Connecticut Academy of Arts and Sciences, the American Political Science Association, and the American Society for Judicial Settlement of International Disputes. In 1921 he was made an associate of the Institute of International Law, and he was a member of many learned societies, including L'Institut de Droit Comparé. Elected Governor of Connecticut as a Democrat, he was considered a possible Democratic candidate for the Presidency, and in the Baltimore convention of 1912 received the votes of Connecticut and Vermont, but was then set aside for Woodrow Wilson. In 1914 he was a Democratic candidate for United States Senator, but failed of election. In 1912 he was in a controversy with former President Roosevelt over the Federal employers' liability law, which he as judge declared to be unenforceable through the state courts. This opinion led to Colonel Roosevelt's denouncing Judge Baldwin's position as reactionary, and the controversy became so bitter as to give rise to talk of a possible libel suit.

Judge Baldwin was a man of wide interests, including religious matters, and in 1913 he predicted a virtual reunion of not only the Protestant denominations, but also that of Protestantism and Roman Catholicism through the medium of the Lutheran Church. Judge Baldwin wrote extensively, his more important works including: *Digest of the Decisions in the Connecticut Law Reports* (2 vols. 1872, 1882); *Baldwin's Cases on Railroad Law* (1896); *Modern Political Institutions* (1898); (co-author) *Two Centuries' Growth of American Law* (1901); *American Railroad Law* (1904); *American Judiciary* (1905); *The Relation of Education to Citizenship* (1912); *Life and Letters of Simeon Baldwin* (1919); *The Young Man and the Law* (1919); and (co-author) *Osborn's History of Connecticut* (1925).

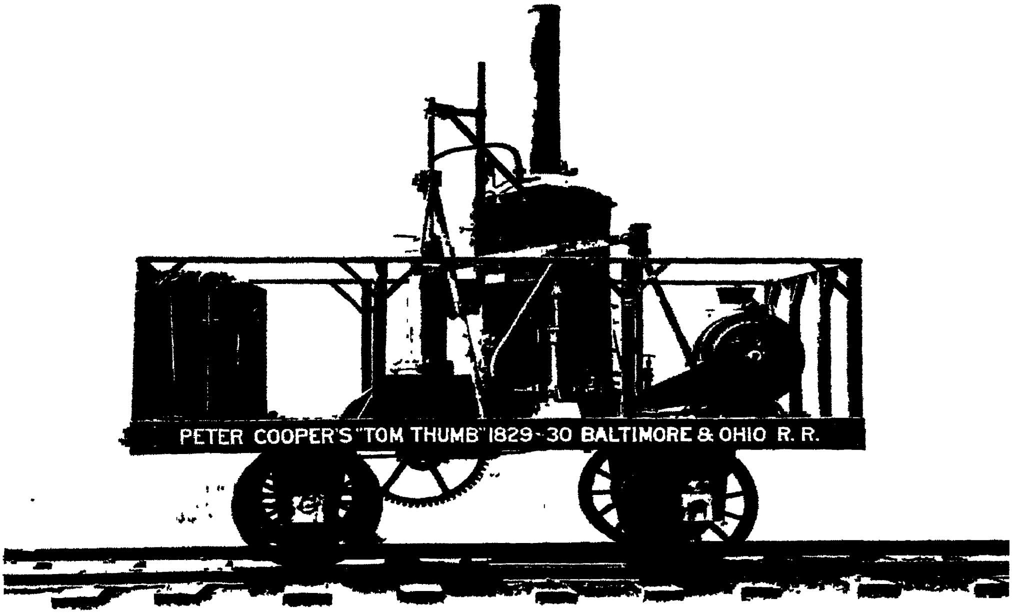
BALKAN STATES. The collective term applied to those states which make up the Balkan peninsula in southeastern Europe north and west of the Ægean Sea. See Albania, Bulgaria, Greece, Jugo-Slavia, Rumania, *and* Turkey.

BALTIC PROVINCES. (Now Baltic States.) The name formerly applied to the Russian provinces of Courland, Esthonia, and Livonia, held by Germany for a time during the war and relinquished at the end of 1919. They now comprise the two new republics: Estonia, formed out of the province of the same name and the northern part of Livonia; and Latvia, formed out of Courland and the southern part of Livonia. See Estonia and Latvia.

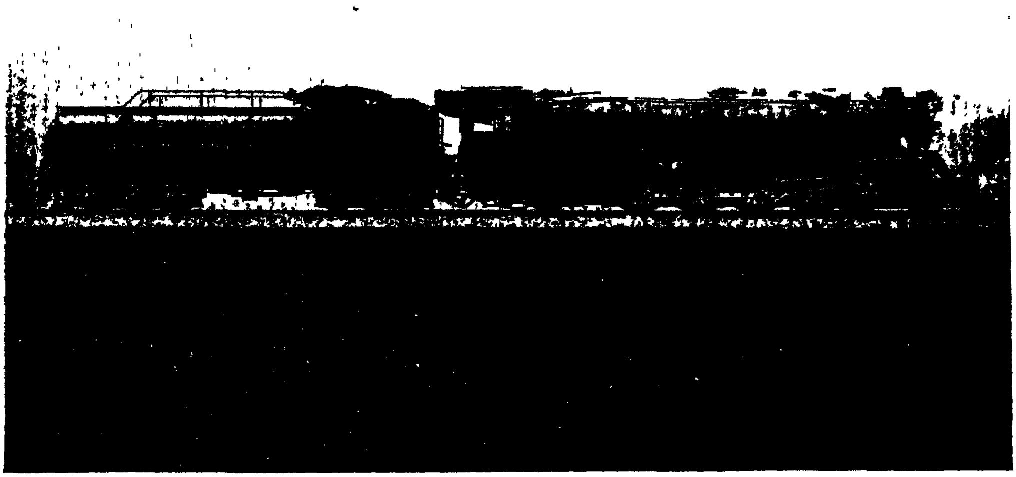
BALTIMORE. See Garbage and Refuse Disposal.

BALTIMORE AND OHIO RAILROAD CENTENARY. The 100th anniversary of the meeting on Feb. 28, 1827, of a small group of citizens of Baltimore interested in transportation at the house of George Brown for the purpose of formulating plans for the organization of the Baltimore and Ohio Railroad, was celebrated with appropriate exercises under the auspices of the Baltimore and Ohio R. R. The employees of the company staged three historic episodes written by Margaret Talbott Stevens and directed by Adele Gutman Nathan, entitled "The Birth of a Railroad." The first depicted the meeting of Baltimore citizens at which the railroad was planned; the second, the laying of the first stone of the line on the farm of John Carroll, near Baltimore; the third the Mount Clare shops in 1830, and an impersonation of Peter Cooper. A dinner was given in the evening at which President Daniel Willard announced the plans for a historic pageant at Halethorpe. Also appropriate addresses were delivered by Mayor Howard W. Jackson, and the Hon. N. D. Baker. The sentiments expressed in all of the addresses were essentially that the celebration commemorated not merely an important milestone in the Baltimore & Ohio Railroad's own history, but the rounding out of a century of definite American railroad achievement.

During the period September 24–October 15 the Baltimore and Ohio Railroad held at Halethorpe an exposition called the "Fair of the Iron Horse" to mark the 100th anniversary of the beginning of the first railroad in the United States operated for the public handling of passengers and freight. The fair was divided into two parts, one consisting of displays of historic interest illustrative of the growth of the modern railroad: Rails, ties, bridges, signal and safety, telegraph and telephone devices, the first sleeping car and the latest; and many other interesting, educational exhibits, which were housed in large buildings. The other was a pageant representing the chief steps in the development of transportation. The pageant was repeated daily and was the outstanding feature, being witnessed by some 50,000 to 100,000 spectators daily in place of from 15,000 to 20,000 as anticipated. It was a moving drama of transport. portraying the unfolding of the full scheme of inland transportation in the United States from earliest times up to the present. Included in the spectacle was, first, the Indian mode of travel, the primitive prairie schooners, stage-coaches, post chaises, and on through the horse-drawn



THE FIRST LOCOMOTIVE BUILT IN THE UNITED STATES



HIGH-SPEED PASSENGER LOCOMOTIVE

THE FAIR OF THE IRON HORSE
BALTIMORE & OHIO RAILROAD CENTENARY PAGEANT—1827–1927

age. This was followed by the tiny "Tom Thumb" (the first American built locomotive) of 1829; the curious "grasshoppers" of the thirties, the odd-looking camelbacks of the forties, the veteran engines of the Civil War and up to the steel giants of to-day, representing the leading railway systems of the United States. In this long, winding line was a number of floats, depicting the inception and start of the Baltimore & Ohio, as well as other events associated with the railroad development. These displays were fully described in a valuable illustrated *Catalogue of the Centenary Exhibition of the Baltimore and Ohio*, 1927. See CELEBRATIONS.

BANKERS' ASSOCIATION, AMERICAN. The dominant national organization of banks in the United States. It has a membership of over 21,000 banks, out of a total of 28,000 in the country, and comprises among its members an estimated 90 per cent of the nation's aggregate banking capital funds of $7,800,000,000 and total resources of $65,000,000,000. The Asssociation has four major divisions, each devoted to the special interests, technical advancement and general welfare of the respective classes of banks indicated in their titles, as follows: the National Bank Division, the Savings Bank Division, the State Bank Division, and the Trust Company Division. Within the organization there are also three sections devoted to general inter-bank interests as follows: the American Institute of Banking Section, which is the educational arm of the organization, with an enrollment of 35,000 students from banks in all parts of the country and a general membership of 60,000; the Clearing House Section, which promotes the organization of city and county bank groups for the purpose of facilitating business transactions and common welfare through clearing houses, clearing house examiner systems, and mutual credit bureaus; and the State Secretaries Section, which forms a link between the national organization and the State bank associations that exist in every State. There is also a Protective Department which prosecutes continually a country-wide campaign of prevention, protection, and investigation for all member banks, in respect to criminal operations against banks. The Association conducts, also, a Legal Department, which keeps bankers informed on developments in the field of banking law and watches the interests of banking and the public in both State and National legislation, in connection with the State and Federal legislative committees and councils of the Association, which seek to present the best banking viewpoints to the legislators.

During 1927 the most important action in respect to legislation was the completion of successful activity leading to the passage of the McFadden Bill, a measure designed to modernize the national bank law and to equalize the privileges of National banks with those of State chartered banks, to recharter the Federal Reserve banks for an indeterminate period, and to restrict branch banking within the Federal Reserve System on conditions equitable with such branch banking privileges as are enjoyed by State banks.

Another outstanding activity was the carrying on of an extensive research into the causes of bank failures and it was duly suggested that the remedy lay in larger minimum capital for banks, the granting of charters only where there was a real need for increased banking facilities, more drastic State supervision of banks, and the organization of group bank associations for mutual help.

The American Bankers' Association Educational Foundation completed its campaign in 1927 to raise a fund of $500,000 to be employed in furtherance of scholarships and research in banking and finance in colleges. In addition, the Education Commission conducts lectures on banking and business in schools and civic clubs throughout the country.

Each autumn the Association holds its annual convention, which draws up the organization's policies. In the spring it holds a meeting of its Executive Council, a representative body proportioned to the membership in all the States, and qualified to take action upon certain Association matters. The continuing activities of the Association are carried on by a permanent staff, functioning in the national headquarters of the organization at 110 East 42nd Street, New York City, under the direction of the Executive Manager, Fred N. Shepherd. There is also an Administrative Committee, composed of fifteen members including the national officers, heads of the various divisions and sections, and certain others, which stands as the ad interim governing authority between meetings of the convention and the Executive Council. The officers for 1927–28 were: Thomas R. Preston, President Hamilton National Bank, Chattanooga, Tenn., president; Craig B. Hazelwood, Vice-President Union Trust Company, Chicago, Ill., first vice-president; John G. Lonsdale, President National Bank of Commerce, St. Louis, Mo., second vice-president; W. D. Longyear, Vice-President Security Trust & Savings Bank, Los Angeles, Calif., treasurer.

BANKS AND BANKING. The year 1927 was a period of general expansion; and, on the whole, of general prosperity in the banking system of the United States. Growth of operations was substantial, while there was probably an improvement in the strength of the banking system from a general viewpoint as evinced in a distinctly better condition of solvency, reflected in a much smaller number of failures. Nevertheless the year was not in important respects a period of improvement in underlying banking conditions, or in the strength of credit; and the end of the twelve months found the country faced with some serious questions which were believed to require early solution.

NATIONAL BANKS. The national banking system had for some years prior to the opening of 1927 been suffering from the competition of state banks, and had shown a disposition to lose members. Recognition of this state of affairs led to agitation for the adoption of the McFadden Bill which became a law on Feb. 25, 1927, and which held out various inducements to banks to become members of the national system—among them a considerable relaxation of previous restrictions upon lending, as well as a modification of conditions under which the amalgamation of banking institutions may take place. Although the remaining months of the year were too short a time to testify fully to the effect of the McFadden Act the consensus of banking opinion, and the official view of the Comptroller of the Currency, was to the effect that it had been influential in restoring the

COMPARATIVE CHANGES IN NATIONAL BANK POSITION
[*In thousands of dollars*]

	June 30, 1923	*June 30, 1924*	*Per cent increase (+) or decrease (—) since June 30, 1923*	*June 30, 1925*	*Per cent increase (+) or decrease (—) since June 30, 1924*
Demand deposits	9,288,298	9,593,250	+ 3.28	10,430,254	+ 8.72
Time deposits	4,755,162	5,259,933	+ 10.62	5,924,658	+ 12.64
Loans and discounts [a]	11,817,671	11,978,728	+ 1.36	12,674,067	+ 5.80
United States and other bonds, stocks, etc.	5,069,703	5,142,328	+ 1.43	5,730,444	+ 11.44
Lawful reserve with Federal reserve banks	1,142,736	1,198,670	+ 4.89	1,326,864	+ 10.69

	June 30, 1926	*Per cent increase (+) or decrease (—) since June 30, 1925*	*June 30, 1927*	*Per cent increase (+) or decrease (—) since June 30, 1926*
Demand deposits	10,778,603	+ 3.34	10,923,729	+ 1.35
Time deposits	6,313,809	+ 6.57	7,315,624	+ 15.87
Loans and discounts [a]	13,417,674	+ 5 87	13,955,696	+ 4.01
United States and other bonds, stocks, etc.	5,842,253	+ 1.95	6,393,218	+ 9.43
Lawful reserve with Federal Reserve banks	1,381,171	+ 4.09	1,406,052	+ 1.80

[a] Includes rediscounts and customers' liability under letters of credit.

popularity of the system. The resultant change in the composition of the national banking system was outlined by the Comptroller of the Currency in his report at the close of 1927 as follows:

"It was freely predicted by the supporters of the so-called McFadden bank bill that its enactment by Congress would bring new life to the system of national banks because under the proposed act national banks would be able to perform every phase of banking carried on by State banks and trust companies. The McFadden Bank Act was approved by the President on Feb. 25, 1927, and although it is too early to judge its full effect—the act having been in operation for less than nine months—it has fully justified itself, as the additions to the resources of the national banking system have more than offset the losses during the three-year period prior to the enactment of the act."

Brief analysis of the actual condition of national banks is furnished by the accompanying table in which chief assets and liabilities of the system are contrasted for a series of dates; from this showing it will be seen that the system had steadily enlarged in its contacts with the public as shown by loans and discounts, investments, deposits, and other principal items. For the year the average dividend of national banks (measured on capital and surplus) was slightly less than 7 per cent while the total net addition to profits was $252,319,000, or about $3,152,000 more than for the preceding year.

FEDERAL RESERVE MEMBERS. The position of Federal Reserve member banks is not identical with that of national institutions because of the fact that the Reserve System includes some 1287 state banks and trust companies within its membership, as well as the entire body of national institutions—which are obliged to retain membership in the system. The group of member banks is therefore rather a more representative group than that of the national institutions. The figures for 659 representative members (including both national and state banks and trust companies) situated in 100 cities probably include about 45 per cent of the entire assets of the system. The condition of these banks as reflected in their statement for the last week of the year and as contrasted with the position a year earlier is shown by the table on p. 99.

From this it will be seen that there was a very decided expansion of deposits amounting in the aggregate to about $1,370,000,000 while loans and discounts increased $813,000,000 and investments by $811,000,000.

The movement throughout the year was steadily upward and there was an increasing tendency to become fully "loaned up" so that at the close of the twelve months there was reason to believe that any demand for further enlargement of credit would result in a correspondingly large resort to Federal Reserve banks for rediscount accommodation.

STATE BANKS AND TRUST COMPANIES. The situation of State banks and trust companies underwent changes substantially parallel to those reflected in the case of national institutions. Owing to the varying dates at which such banks report in the several states a combined statement based on State returns is impossible, the only available aggregate statement being that furnished by the Comptroller of the Currency as of June 30, 1927. This statement is of interest

	Dec. 28, 1927	Week increase (+) decrease (—)	Year increase (+) decrease (—)
Loans and investments—total	$21,819,635,000	+ $31,976,000	+ $1,624,209
Loans and discounts—total	15,433,348,000	+ 76,388,000	+ 813,076,000
Secured by U. S. Govt. obligations	128,253,000	— 532,000	— 16,128,000
Secured by stocks and bonds	6,587,067,000	+ 94,041,000	+ 836,708,000
All other loans and discounts	8,718,028,000	— 17,121,000	— 7,504,000
Investments—total	6,386,287,000	— 44,412,000	+ 811,183,000
U. S. Govt. securities	2,804,368,000	— 64,048,000	+ 464,642,000
Other bonds, stocks, and securities	3,581,919,000	+ 19,636,000	+ 346,491,000
Reserve balances with F. R. banks	1,813,148,000	+ 33,437,000	+ 138,602,000
Cash in vault	317,835,000	— 21,925,000	— 5,887,000
Net demand deposits	13,786,153,000	— 53,370,000	+ 676,165,000
Time deposits	6,516,079,000	+ 12,108,000	+ 664,070,000
Government deposits	192,020,000	+ 250,000	+ 28,955,000
Due from banks	1,216,900,000	+ 15,591,000	....
Due to banks	3,566,544,000	+ 37,685,000	....
Borrowings from F. R. banks—total	463,112,000	+ 31,051,000	— 48,353,000
Secured by U. S. Govt. obligations	328,668,000	+ 15,589,000	+ 27,373,000
All other	134,444,000	+ 15,462,000	— 75,726,000

CONSOLIDATED RETURNS FROM STATE (COMMERCIAL), SAVINGS, PRIVATE BANKS, AND LOAN AND TRUST COMPANIES

[*In thousands of dollars*]

Items	*1923*	*1924*	*1925*	*1926*	*1927*
Loans [a]	18,459,327	19,359,419	21,073,990	22,623,107	23,348,344
Investments	8,602,844	9,086,417	9,669,669	9,972,888	10,861,875
Cash	505,993	566,281	591,681	636,569	643,692
Capital	1,723,476	1,780,192	1,800,276	1,860,431	1,902,325
Surplus and undivided profits	2,206,818	2,356,855	2,580,134	2,858,653	3,130,367
Deposits (individual)	25,990,735	28,100,938	30,411,030	31,789,884	32,893,201
Resources	32,523,145	34,578,771	37,706,174	39,577,738	41,550,615

[a] Including overdrafts.

for purposes of comparison with that of the national banks already furnished although it reveals no movements of a distinctly independent character. The leading features of it are as shown above.

Federal Reserve Banks. Federal reserve banks underwent no far reaching changes during the year, their total extension of credit being curtailed by about $100,000,000. Up to the opening of autumn they had been gaining gold but due to commitments on their own part and those of members for the shipment of gold they lost about $150,000,000 subsequent to October 1 and closed the year with a net shrinkage of $113,000,000. Changes in their principal items may be noted in the accompanying condensed statement which compares the situation at the end of 1927 with that which existed a year earlier. It will be noted from the statement that Federal reserve notes which had amounted to $1,812,000,000 at the opening of the year were practically steady with $1,813,000,000 at the close of 1927 while reserve balances which had been $2,351,000,000 had increased to $2,431,000,000. No serious significance is to be found reflected in these minor changes. Continuation of the general inflationary movement that had been in progress throughout the year was found chiefly in the statements of the member banks and had not extended itself to the Federal Reserve banks. The reserve banks which had opened the year with a 4 per cent discount rate maintained it till the latter part of the summer when it was reduced to 3½ per cent and continued at that figure throughout the remainder of the year. General opinion held to the view that the rate was too low and that as a result of it the tendency of credit was to expand too rapidly, particularly in the stock market.

RESOURCES AND LIABILITIES OF THE TWELVE FEDERAL RESERVE BANKS COMBINED

[*In thousands of dollars*]

Resources	*Dec. 28, 1927*	*Jan. 5, 1927*
Gold with Federal Reserve agents	1,469,255	1,419,755
Gold redemption fund with U. S. Treasury	54,681	67,927
Gold held exclusively against F. R. notes	1,523,936	1,487,682
Gold settlement fund with F. R. Board	595,140	637,805
Gold and gold certificates held by banks	620,054	729,956
Total gold reserves	2,739,100	2,855,443
Reserves other than gold	123,096	142,816
Total reserves	2,862,196	2,998,259
Non-reserve cash	69,647	76,180
Bills discounted:		
Sec. by U. S. Govt. obligations	411,824	360,532
Other bills discounted	197,385	272,950
Total bills discounted	609,209	633,482
Bills bought in open market	385,527	388,837
U. S. Govt. securities:		
Bonds	287,746	54,108
Treasury notes	62,531	93,659
Certificates of indebtedness	252,849	166,106
Total U. S. Govt. securities	603,126	313,873
Other securities	980	3,621
Total bills and securities	1,598,842	1,339,813
Due from foreign banks	568	657
Uncollected items	728,018	814,912
Bank premises	60,185	58,131
All other resources	14,383	12,302
Total resources	5,333,839	5,300,254
Liabilities		
F. R. notes in actual circulation	1,813,198	1,812,698
Deposits:		
Member bank—reserve account	2,431,845	2,351,953
Government	16,680	6,451
Foreign bank	4,423	25,308
Other deposits	20,328	25,657
Total deposits	2,473,276	2,409,369

RESOURCES AND LIABILITIES OF THE TWELVE FEDERAL RESERVE BANKS COMBINED *Continued*
[*In thousands of dollars*]

Liabilities	*Dec 28, 1927*	*Jan. 5, 1927*
Deferred availability items	666,322	714,682
Capital paid in	132,460	125,011
Surplus	228,775	228,775
All other liabilities	19,808	9,719
Total liabilities	5,333,839	5,300,254
Ratio of total reserves to deposit and F. R. note liabilities combined	66.8%	71.0%
Contingent liability on bills purchased for foreign correspondents	226,904	60,718

BANK CREDIT. The figures which have already been given review in a general way the movement of bank credit during the year but some of the less obvious phases of the situation call for attention. Perhaps the most outstanding of these was the enormous expansion of loans in the stock market. Two regular sets of figures on this subject are now made public, the one that of the New York Stock Exchange which reflects the aggregate loans made by all classes of banks to members of the Exchange, and the other of the Reserve Board which shows loans made by member banks in the New York district to brokers. The two sets of figures run fairly parallel to one another, although the stock exchange usually shows a higher level by about $500,000,000 or more. During the year, loans as reported by the Stock Exchange rose to $4,200,000,000, an increase of about $1,100,000,000 while those reported by the Federal Reserve Board increased to approximately $3,700,000,000, an advance of some $750,000,000. This immense expansion of brokerage loan credit was rightly regarded as a serious menace to financial and banking stability, although up to the close of the year it had not resulted, as on many former occasions, in any severe reaction of market quotations. As to credit in other aspects, the Reserve Board from time to time expressed the opinion that there was a tendency toward a growth of "frozen" loans in banks or a tying-up of bank obligations in a much more fixed form than heretofore, with decline in the holdings of paper eligible for rediscount. There seemed to be no question that this situation continued well up to the close of the year, and that with some banks it represented a persistent state of affairs whose effects would be notable if there should be any serious stringency or other condition calling for rediscount accommodation.

BANK FAILURES. During the first half of the year 1927, bank failures continued to furnish a cause of anxiety and unrest, as had been true for the two years preceding. A turn for the better was noted soon after the middle of the year. This was in part due to the fact that agricultural business had shown improvement, the result being that farmers were in better position to meet their obligations, and bankers more disposed to lend to them, while it was also in part due to the circumstance that, during the past two or three years land values had been pretty well "liquidated," or reduced to their eventual values as compared with other classes of property.

The Comptroller of the Currency making his annual report at the opening of Congress was obliged to report the total number of national bank failures during the year ending on November 1 as 135 or an increase of 44 as compared with the preceding year, but he was able to note that of these, 111 had occurred prior to July 1 while figures compiled by the Federal Reserve Board for all banks showed an approximate total of bank failures both national and state up to the end of November, 1927, amounting to 614 with deposits of $222,000,000 as compared with 956 and deposits of $272,500,000 for the year 1926. Reduction of failed assets took place in about the same proportion as reduction in actual number of banks which were forced to the wall.

This improvement in bank failure conditions was apparently in no wise due to either legislation or alteration in the severity of supervision, or on the whole to better credit conditions. It appears to have been merely the gradual wearing out of an epidemic of bank failures resulting from post-war agricultural inflation. The American Bankers' Association in its annual session at Houston, Texas, received and adopted a report on the bank failure situation which ascribed failures largely to the existence of many weak institutions, unable to bear local competition, and recommended the usual methods designed to strengthen the banking system against failure. In connection with failures, it is also to be noted that mergers and amalgamations continued more actively than ever thus eliminating weak institutions and avoiding failures. The Comptroller of the Currency's annual report noted 400 cases in which state banks had been amalgamated with national, while there were additional amalgamations among state institutions whose number is not exactly known, but probably ran to 100–200 additional. The tendency of banking in the United States was still markedly toward a reduction in the number of institutions.

BRANCH BANKING. Branch banking whose spread had been the primary reason for the adoption of the McFadden act, made comparatively little advance in legislative position during the year but continued to increase in practice through the actual establishment of new branches. The McFadden act both expedited it in some particulars, and retarded it in others. During the year, about 127 new branches were organized by national banks (in cities), while, through the amalgamations already referred to, four hundred other branches were added as already noted, the combined institutions retaining the former banks of practically every case as branches of the merged institutions. In some of the States, under legislation already existing, numbers of new branches were added, but the McFadden act effectually suspended the growth of such branches (except within cities and under the restrictions laid down in the act) for the members of the Reserve System. There was some expansion of "chain" banking, although the disasters that had overtaken sundry already existing chain banks served to afford a warning against the hazardous exploitation of this sort which had previously been in progress. On the whole, the year was a period of decided advance in the actual practice of branch banking, with an increasing probability of further great enlargement to occur later on through modification of legislation, notwithstanding that the precise direction to be taken by such legislation remained obviously unsettled.

INTERNATIONAL RELATIONS. There was little or no growth in the development of American banking abroad, the common consensus of opinion among the larger institutions being against expansion of this variety. On the other hand the closeness and extent of American banking ties with foreign countries undoubtedly increased. Secretary Mellon in his report at the close of 1927 estimated that American institutions were probably carrying about $2,000,000,000 on open deposit account in favor of foreign institutions, while the amounts carried abroad by American banks were allowed to increase materially, owing to the very considerable progress and the stabilization of foreign currencies and the fact that attractive rates of interest could be obtained in London and elsewhere. Federal Reserve banks established credits (announced to the public) during the year for the Banks of Poland, Italy, and others and conducted an extensive business in earmarking gold as a means of avoiding the actual movement of the metal into and out of the United States. It was characteristic of the transactions of the year in foreign trade that they were carried on with a freedom or security superior to any that had existed since the pre-war period, this being largely the outcome of conditions already referred to in foreign monetary and banking systems.

Conditions at Close of Year. Banking problems at the close of the year centred around the probable movement of gold as a result of European currency adjustments and the effect that such movements of gold would have upon the greatly expanded structure of credit in the United States. Such influence in its indirect bearing upon stock exchange values naturally constituted the chief basis for anxiety in financial circles while possible ultimate reaction upon the price structure and upon business in general was also generally recognized as an element of no little importance in the situation.

BAPTISTS. In 1927 there were in the United States 14 bodies comprising that branch of the Christian Church known as Baptists, which numerically constituted the second largest Protestant group. While the Baptists trace their origin to the Protestant Reformation in the sixteenth century and churches were found in that period in Germany and Switzerland, the first Calvinistic Baptist Church was formed in London in 1638 and the First Baptist Church in America was probably established by Roger Williams in Providence, R. I., in 1639, although this honor is disputed by the First Baptist Church of Newport, R. I., organized the same year or shortly after. As a result of political differences, and particularly on account of the question of slavery prior to the Civil War, the Southern Baptists withdrew from the national organization in 1845, forming the Southern Baptist Convention, which since that time has functioned not as a new denomination, but as an organization for the purpose of directing missionary and general evangelistic work in the churches of the Southern States. A National Baptist Convention representing the negro churches was also formed. In addition to the main body, other divisions early began to appear. These were known as "Primitive," "United," "General," "Free," etc. In its polity the church is congregational, each church being sovereign as to its own discipline and worship. Applicants for the ministry are licensed to preach by the church in which they hold membership.

Statistics prepared by the *American Baptist Year Book* in 1927 showed in the United States a total of 54,926 churches, with 43,687 ordained ministers; 2123 local associations; and 325,386 baptisms during the year, making a membership of 8,347,331. Sunday schools numbered 47,169 with an enrollment of 4,915,707. Church property was valued at $426,416,000, and contributions amounted to $76,031,654, of which $61,490,438 was for current expenses and $14,541,116 for beneficences. These figures were divided among the three main groups of the denomination as follows: The Northern Baptist Convention, composed of 35 State conventions reported 8285 churches; 424 associations; 8458 ministers; 65,951 baptisms during the year; 1,399,931 church members; 7387 Sunday schools with a membership of 1,150,014; and contributions amounting to $34,212,858. The Southern Baptist Convention consisted of 18 State conventions and had 26,003 churches; 994 associations; 18,569 ministers; 3,708,253 members, of whom 195,858 were baptized during the year; 21,777 Sunday schools, with 2,274,268 members; and contributions of $40,106,791. There were 26 Negro Baptist Conventions with 20,665 churches; 705 associations; 16,698 ministers; 3,253,369 church members, 64,042 of whom were additions; 1,055,973 Sunday school scholars in 18,032 schools; and $2,199,823 in contributions. Could statistics have been adequately and correctly reported, they would have revealed a Negro Baptist constituency approximating 5,000,000.

In the Dominion of Canada there were three conventions; churches numbered 1335; ministers, 866; members, 144,537, 6261 being additions; 1268 Sunday schools, and 116,581 scholars; and contributions to the amount of $2,858,001. There were 93 churches in Mexico, with 49 ministers and 6653 members.

The denomination maintains in the United States and Canada 246 educational institutions, which in 1927 had 88,317 students, 5472 instructors, property aggregating $119,635,800, endowments valued at $122,123,411, and an income for the year of $35,394,471. Of these institutions, the Northern Baptists maintained 61, the Southern Baptists 118, the Colored Baptists, 60, and 7 were in the Dominion of Canada. There were 32 orphanages, 31 homes, and 37 hospitals under the direction of the denomination. Large staffs of workers were engaged in home missions and in foreign missions in India, Burma, China, Japan, the Congo, the Philippines, and European countries.

In addition to several unorganized groups of foreign-speaking Baptists in North America, there are the following organized bodies which hold their own conferences: German, Swedish, French-speaking Baptists of New England, Finnish Baptist Mission Union, American Magyar (Hungarian), Italian, Danish, Norwegian, Czechoslovak, Polish, Rumanian Baptist Association, Portuguese Baptist, and Russian-Ukrainian Baptist Conferences. Statistics for these bodies in 1927 were as follows: Churches, 917; ministers, 690; baptisms, 4033; membership, 82,023; Bible schools, 807; Bible school enrollment, 86,758; property valuation, $11,764,600; contributions, $2,519,971.

Smaller branches of the denomination, differing in various respects from the main branches of the church, include the following: Six-Principle Baptists (The International Old Baptist Union), Seventh-Day Baptists, Free Will Baptists, Colored Free Will Baptists, Free Will Baptists (Bullockites), General Baptists, Separate Baptists, Regular Baptists, United Baptists, Duck River Primitive Baptists (Progressive), Scandinavian Independent Baptists, and Two-Seed-In-The-Spirit Predestinarian Baptists. See also BAPTISTS, FREE.

The denomination maintains several publishing houses, of which the most important is the American Baptist Publication Society in Philadelphia. The official periodical of the Northern Baptist Convention is *The Baptist* (Chicago); of the National Baptist Convention, the *National Baptist Voice* (Nashville); while many sectional publications represent the Southern Baptist Convention.

The Baptist World Alliance was organized in 1905 and meets every five years; the last meeting was held in July, 1923, in Stockholm, Sweden. Its relationship to the Baptist churches is purely advisory and its purpose is discussion of interests common to the denomination. The *British Baptist Hand Book* for 1927 prepared the following statistics of the denomination in 1926:

	Churches	*Ministers*	*Members*
America	59,643	50,295	8,568,955
Europe	10,922	4,790	1,636,960
Asia	3,064	1,895	334,251
Africa	865	345	67,727
Australasia	432	361	32,811
Total	74,926	57,686	10,635,704

BAPTISTS, FREE. A branch of the Baptist denomination, which by 1927 had practically completed its policy of merging with the Northern Baptist Convention. There was but little independent activity of the Free Baptists, yet the General Conference of the Free Baptists, the national incorporated organization, still preserved its legal existence and powers. Estates in which life interests terminated or other entailments were removed, were still coming to its treasury. The majority of Free Baptist ministers, churches and members were included in the enumeration of the Northern Baptist Convention. Alfred Williams Anthony was serving as corresponding secretary and treasurer. See BAPTISTS.

BAR ASSOCIATION, AMERICAN. A national association organized in 1878 to advance the science of jurisprudence, the administration of justice, harmony in legislation, and the observance of legal precedents throughout the United States, as well as to uphold the legal profession and promote good understanding among its members. The fiftieth annual meeting, held at Buffalo, N. Y., Aug 31, Sept. 1, 2, 1927, was attended by 1600 delegates. The retiring president, Charles S. Whitman of New York, in his opening address, summarized the work of the Association throughout the years of its existence; spoke of the progress made during the year in the clarification of laws relating to public utilities; stressed the need for further modifications in the Sherman Law and the Clayton Act to meet the needs of business conditions in 1927; and touched upon the new legal problems and regulatory legislation relating to aërial communication. George H. A. Montgomery, K. C., bâtonnier of the Montreal Bar, addressed the Association on "Forests and Water-powers of the Province of Quebec and the Laws Appertaining to Their Development." Among other speakers were M. Maurice Bokanowski, Minister of Commerce, France, who spoke on the necessity of uniform laws governing trade and transportation between the various nations, and the need for conciliation and coöperation in international relations; and William H. Taft, who welcomed and presented the Right Honorable Lord Hewart of Bury, the Lord Chief Justice of England. Lord Hewart spoke on the changing character and aims of much of the newspaper press, pointing to the need for accurate and adequate information upon public affairs, and brought out the bond between England and the United States in the heritage of the common law, which is founded on principles of justice and freedom; Frank H. Mott also spoke, on the subject of "Grover Cleveland—An Appreciation." The convention devoted considerable discussion to and passed a recommendation relating to amendments to the United States Anti-Trust Law. The Standing Committee on Air Law reported to the meeting the results of their consideration of two problems relating to Air Law: first, the new Federal radio legislation, and second, the operation of the new laws affecting aviation. Reports of committees adopted without opposition were those of the Admiralty and Maritime Law, Air Law, American Citizenship, Jurisprudence and Law Reform, Commerce, Commercial Law and Bankruptcy, International Law, Professional Ethics and Grievances, Uniform Judicial Procedure, Change of Date of the Presidential Inauguration, Legal Aid, Insurance, and the Incorporation of the American Bar Association. Officers elected at the meeting were Silas H. Strawn, Chicago, President; John H. Voorhees, Sioux Falls, S. D., Treasurer; William P. McCracken, Chicago, reëlected Secretary. The head quarters of the Association are maintained at 1119 The Rookery, 209 S. LaSalle Street, Chicago.

BARBA'DOS. An island colony of Great Britain, lying to the east of the Windward Islands; the most easterly of the Caribbean Islands. The area is 166 square miles and the population, according to the census of 1921, 156,312; estimated, Dec. 31, 1925, 162,211. The capital and chief city is Bridgetown, with a population of 13,486. In 1925 the average attendance in the elementary schools was 14,220 out of an enrollment of 22,180. In 1924 there were 5227 births and 4692 deaths. The figures in pounds sterling for revenue, expenditure, imports and exports, and public debt for 1925–26 were as follows:

Revenue	£404,183
Expenditure	394,250
Imports	2,298,777
Exports	1,421,085
Public debt	591,000

The principal imports were cotton manufactures, manures, flour, dried fish, machinery, salt beef and pork, and rice. The principal exports were sugar, molasses, raw cotton, and rum. The administration is under a governor assisted by an executive council, an executive committee, a legislative council of nine members appointed by the king, and an assembly of 24 members elected annually by the people. Governor in 1927, W. C. F. Robertson.

BARLEY. The barley production in 1927 of 31 countries reporting to the International Institute of Agriculture, Rome, was estimated at 1,101,300,000 bushels, an increase of 9 per cent over the production of 1926 and of 15.5 per cent above the average yield for the five years 1921–1925. The increase in area for the two periods was only ½ per cent and 6 per cent respectively. The yields of the leading barley producing countries, exclusive of the United States, were as follows: Germany 122,733,000 bushels, Canada 98,242,000 bushels, Spain 89,485,000 bushels, Poland 74,871,000 bushels, Japan 71,555,000 bushels, Rumania 61,136,000 bushels, France 55,572,000 bushels, Czechoslovakia 55,022,000 bushels, Algeria, 39,500,000 bushels, England and Wales 38,640,000 bushels, French Morocco 36,744,000 bushels and Korea 34,898,000 bushels. India in 1926 produced 120,589,000 bushels and Argentina in the crop year 1926–27 18,372,000 bushels.

The United States in 1927, according to estimates published by the Department of Agriculture, produced 265,577,000 bushels on 9,492,000 acres, the rate per acre being 28 bushels. As compared with 1926 these figures indicate increases of 80.672,000 bushels, 1,522,000 acres and 4.8 bushels respectively. The average farm price on Dec. 1, 1927, was 67.8 cents per bushel as against 57.5 cents per bushel, the corresponding price the preceding year. At these prices the total value of the 1927 crop was $180,127,000 and that of the crop of 1926 $106,237,000. Both yield and price increased in 1927 and raised the total value of the crop. That barley is gaining in popularity as a feed crop was indicated by the fact that in nearly all of the 35 States reporting yields, these were increases in acreage.

The production of the leading barley producing States was as follows: Minnesota 45,090,000 bushels, North Dakota 42,406,000 bushels, South Dakota 32,670,000 bushels, California 27,335,000 bushels, and Wisconsin 21,390,000 bushels. North Dakota devoted 1,663,000 acres, Minnesota 1,503,000 acres, and South Dakota 1,089,000 acres, these being the only States with more than a million acres. The total area of these three States was nearly one-half the total barley area reported for the year. The average farm price on December 1, 1927, in the different States ranged from 55 cents per bushel in Kansas and Nebraska to $1.10 per bushel in North Carolina. During the year ended June 30, 1927, the United States exported 17,044,000 bushels of barley as compared with 27,181,000 bushels during the preceding fiscal year. The Federal grain standards for barley were amended and the order became effective Sept. 15, 1927. The principal change raised the maximum moisture content permitted from 14.5 per cent to 15.5 per cent.

BARNARD COLLEGE. See COLUMBIA UNIVERSITY.

BARTLETT, JOHN. Arctic explorer, died at Fredericton, N. B., April 4. He was born at Brigues, Newfoundland, in 1843, and was early trained at sea, commanding at the age of 21 a wooden vessel, the *Panther*, which sailed from Newfoundland to Scotland to be fitted with steam engines and propeller. He returned in the following year, 1855, as captain of this vessel, which was the first steamship to be employed in sealing. He followed that industry for many years, becoming well acquainted with Arctic waters. He accompanied Dr. Isaac I. Hayes in 1869 in his exploration of the northwestern coast of Greenland, and established a reputation which led Commander Robert E. Peary later to select him as a member of his first Arctic expedition. His activities at sea extended over more than half a century, and were characterized by the absence of serious misadventures. He was thanked by the Danish government for saving the lives of the crew of a Danish trading vessel which had been wrecked in Arctic waters.

BASEBALL. The New York American League Club, familiarly known as the "Yankees" captured the world series and thereby the professional baseball championship in 1927. Their opponents in this classic were the Pittsburgh Pirates, who had won the pennant race in the National League. The series was woefully one-sided, the American League representatives carrying off the laurels with four straight victories. The Yankees in winning the championship flag in their own league were confronted by the weakest sort of opposition, whereas the Pirates succeeded in gaining the National League honors only after one of the closest struggles in baseball history. The Yankees, incidentally, set a new American League record by scoring 110 victories out of 154 games played.

George Herman ("Babe") Ruth was once more the unsurpassed thrill producer and gate attraction. He accomplished what was regarded as the impossible feat of knocking out 60 home runs during the season, thus excelling his world record of 59 which he established in 1921. More than 5,000,000 persons attended the American League games in the various cities of the circuit despite the insurmountable lead the Yankees enjoyed practically throughout the entire campaign and it cannot be doubted that Babe Ruth and his "home run bat" were responsible for this huge attendance figure. During the year Ruth signed a new three-year contract with the Yankees which called for an annual salary of $70,000, the highest ever paid a ball player. It was understood he at first demanded $100,000.

The statistics of the world series follow:

First game, Yankees, 5 runs, 6 hits, 1 error; Pirates, 4 runs, 9 hits, 2 errors. Batteries, Hoyt, Moore and Collins; Kremer, Miljus and Smith.

Second game, Yankees, 6 runs, 11 hits, 2 errors; Pirates, 2 runs, 7 hits, 3 errors. Batteries, Pipgras and Bengough, Aldridge, Cvengros, Dawson and Gooch.

Third game, Yankees, 8 runs, 9 hits, no errors; Pirates, 1 run, 3 hits, 1 error. Batteries, Pennock and Grabowski, Bengough; Meadows, Cvengros and Gooch, Spencer.

Fourth game, Yankees, 4 runs, 12 hits, 2 errors; Pirates, 3 runs, 10 hits, 1 error. Batteries, Moore and Collins; Hill, Miljus and Smith, Gooch.

Byron Bancroft Johnson, founder of the American League and president of the organization since its inception, departed from the baseball arena during 1927. The charges that Tyrus Cobb and Tristram Speaker, two veteran and highly esteemed players, had bet on the outcome of a game several years ago led to the passing of Johnson. While Judge Kenesaw Mountain Landis, High Commissioner of Baseball, was investigating these charges President Johnson issued a statement bitterly attacking Landis for the manner in which the latter was handling the case and demanding a "showdown." The climax came when at a session of the league in Chicago in January Landis was absolved of all blame and Johnson censured and ordered to take an indefinite leave of absence. Johnson suddenly reappeared in his Chicago offices in April and again took charge of league affairs but on July 8 at the demand of the league directors he tendered his resignation to take effect the following November. Later E. S. Barnard, then president of the Cleveland Club, was chosen head of the American League. Cobb and Speaker in the meanwhile had been exonerated by Commissioner Landis and declared free agents. Speaker eventually signed with the Washington Senators and Cobb with the Philadelphia Athletics, both at large salaries.

Harry Heilmann of the Detroit Tigers was the leading batter of the year in the American League with an average of .398 while Paul Waner of the Pittsburgh Pirates captured the hitting laurels in the National League with .390. Waner also was voted the most valuable player in his league, Lou Gehrig of the New York Yankees gaining the same distinction in the American League. The most effective pitcher in the National League proved to be Ray Kremer of the Pittsburgh Pirates. In the American League this honor fell to Wilcy Moore of the New York Yankees.

The final standing of the National League was as follows:

Pittsburgh won 94, lost 60; St. Louis won 92, lost 61; New York won 92, lost 62; Chicago won 85, lost 68; Cincinnati won 75, lost 78; Brooklyn won 65, lost 88; Boston won 60, lost 94; Philadelphia won 51, lost 103.

The final standing of the American League follows:

New York won 110, lost 44; Philadelphia won 91, lost 63; Washington won 85, lost 69; Detroit won 82, lost 71; Chicago won 70, lost 83, Cleveland won 66, lost 87; St. Louis won 59 lost 94; Boston won 51, lost 103.

The pennant winners in the more important minor leagues were: International, Buffalo; American Association, Toledo; Pacific Coast, Oakland; Southern, New Orleans; Western, Tulsa; Eastern, Albany; Three I, Danville; New England, Portland; South Atlantic, Greenville.

Among well-known baseball men who died during 1927 were William Gilbert, former second baseman of the New York Giants, Walter Keeley, once shortstop of the Brooklyn Robins, Michael Lynch, old-time National League pitcher, Lave Cross, former Philadelphia Athletics' third baseman and James E. Johnstone, former big league umpire.

Among the stronger college nines in 1927 were Pennsylvania, Holy Cross, Fordham, Harvard and Georgetown.

BASKETBALL. The ever increasing popularity of basketball was attested in 1927 by the opening of the Palestra of the University of Pennsylvania with seating facilities for 10,000. A capacity crowd witnessed the opening game there between Yale and Pennsylvania and it was estimated that more than 100,000 persons witnessed the matches played in the Palestra during the season. Other colleges will be forced to afford more seating space if the large numbers this sport was attracting were to be accommodated.

The championship of the Eastern Intercollegiate League was won by Dartmouth after a play-off with the Princeton quintet. These teams finished the regular season with seven victories and three defeats each and met in the Palestra for the deciding contest which went to Dartmouth by a score of 26 to 24. Pennsylvania and Columbia were tied for third place in the final league standing, each having won five games and lost five.

Michigan captured the laurels in the Western Conference with ten victories and two defeats. Indiana and Purdue were tied for second honors with nine triumphs and three reverses each. Vanderbilt won the Southern Conference title while California was the victor in the Pacific Coast conference.

The Hillyards of St. Joseph, Mo., for the second year in succession won the national Amateur Athletic Union championship in the tournament held at Kansas City, Mo. In the final game the Hillyards defeated the Ke-Nash-A five of Kenosha, Wis., by a score of 29 to 10. A crowd of 10,000 spectators saw the contest.

BASKET MAKING. See ANTHROPOLOGY, under *New World Ethnography.*

BATES COLLEGE. A non-sectarian coeducational college at Lewiston, Me.; founded in 1864. For the first semester of 1927 there were 620 students, 359 of whom were men and 261 women; in the summer session there was a total of 229, of whom 96 were men. The faculty and administrative officers numbered 48. The year 1926–27 witnessed alterations to the Chemical Laboratory and Libbey Forum, resulting in a considerable extension of recitation room facilities. Honors courses were further developed, sectioning according to ability was tried, and several curriculum revision committees got under way. The permanent funds of the College amounted to $1,750,000; total expenditures for 1926–27 were $232,682, and the budget for 1927–28 involved an appropriation of $278,207. The library contained 55,000 volumes. President, Clifton Daggett Gray, Ph.D., LL.D.

BATTEL CRUISER. See NAVAL PROGRESS.

BATTLESHIP. See NAVAL PROGRESS.

BAUMES LAWS. See CRIME.

BAUXITE. In 1926 the bauxite output of the United States was 392,250 long tons, valued at $2,415,200, or an increase of 24 per cent in quantity and 21 per cent in value, as compared with 1925. The imports of bauxite in 1926 aggregated 281,644 long tons, valued at $1,187,497, or a decrease of 20 per cent in quantity, as compared with 1925. Bauxite, which enters largely into the manufacturing of aluminum, was produced in the United States principally in Arkansas, where the production in 1926 was 371,570 long tons, valued at $2,298,550, Georgia and Tennessee supplying 20,068 tons valued at $116,650. The principal sources of bauxite outside of the United States were France, British Guiana, Italy and Dutch Guiana. See also ALUMINUM.

BAVA'RIA. A constituent state of the German Republic; formerly a kingdom within the German Empire, ruled for more than a century by the Wittelsbach dynasty, which was deposed after the revolution following the World War. The new state adopted a republican form of government on Nov. 22, 1918. Area 29,334 square miles; population, according to the census of 1919, 7,140,340; according to the census of 1925, 7,379,594. Chief cities: Munich, with a population of 680,704 in 1925; Nuremberg, 392,494; Augsburg, 165,522; Ludwigshafen, 101,869. In 1925 there were 52,900 marriages; 142,683 living births; 3739 still births; and 99,472 deaths. The religious division of the population of Dec. 1, 1925, was: Roman Catholics, 5,164,-

786; Protestants, 2,110,327; Jews, 49,163. Education is compulsory between the ages of six and 16. In 1925 the chief crops with their areas and yields were as follows: Wheat 617,527 acres, 413,568 metric tons; rye, 1,020,771 acres, 594,493 tons; oats, 1,075,383 acres, 461,018 tons; potatoes, 939,159 acres, 4,913,362 tons; vines, 50,709 acres, 7,752,096 gallons; hops, 26,723 acres, 3879 tons. The census of livestock in the same year showed 411,368 horses, 3,534,391 cattle, 489,980 sheep, 1,736,314 pigs, and 450,810 goats. In 1925 the output of coal was 2,208,532 metric tons; of iron ore, 514,931 tons; pig iron, 244,725 tons; cast iron ware, 191,507 tons; sulphuric acid, 309,185 tons.

The constitution dates from Aug. 14, 1919. Under it, the supreme power is vested in the people, who are represented by a diet of one chamber elected for four years on a basis of universal, equal, direct, secret, and proportional suffrage, all citizens over 21 years of age having the right to vote. There is one representative for every 62,000 inhabitants, making a legislature of 129 members. The various parties represented in the Bavarian National Constituent Assembly (elected April and May, 1924) were as follows: Baravian People's party, 46; Social Democrats, 24; Völkischer Bloc, 14; National Socialists, 6; German Nationals and National Liberals, 14; Bavarian Peasants' and Middle-Class Union, 12; Communists, 7; others, 8. The cabinet as constituted in 1927 was as follows: Premier and Minister of Foreign Affairs, Dr. Held; Education, Herr Goldenberger; Commerce and Industry, Dr. von Meinel; Social Welfare, Herr Oswald; Agriculture, Professor Fehr; Interior, Herr Stuetzel; Finance, Dr. Krausneck; Justice, Herr Gürtner.

BAXTER, Sylvester. American publicist, died at San Juan, Porto Rico, January 28. He was born at West Yarmouth, Mass., Feb. 6, 1850, of Pilgrim ancestry, and was educated at Leipzig and Berlin. His early life was spent on various Boston newspapers and as a foreign correspondent, being a special correspondent for the *Boston Advertiser* in Germany, 1875–77, and of the *Boston Herald* and *New York Sun* in Mexico, 1883–84, when he was editor of the *Mexican Financier*. From 1885 to 1886 he was editor of *Outing*, and he was a correspondent for the *Outlook* in South America. He was interested in the development of the Boston municipal park system, and was said to be the first to suggest the organization of Greater Boston, and of the Boston Metropolitan Park System. He was secretary of the Boston Metropolitan Improvements Committee, 1907–09, and at one time was chairman of the Malden Park Commission. His writings include: *Cruise of a Land Yacht; Berlin, A Study in Municipal Government* (1890); *The Boston Park Guide; The Old New World, Statement of the Hemenway Southwestern Archæological Expedition* (1888); *Greater Boston* (monograph) (1891); *Spanish Colonial Architecture in Mexico* (1902); *the Quest of the Holy Grail* (1904); *Old Marblehead* (1906); *The Unseen House* (poems) (1917); also numerous articles relating to civic improvement and economics, and architecture and other arts.

BEARSTED, Viscount (Marcus Samuel). British developer of oil fields, died at London, January 17. He was born Nov. 5, 1853, the second son of Marcus Samuel, and was educated privately. He traveled extensively in the Far East in connection with his business. This, beginning with painted shells, grew to include curios, general produce and rice. While in Japan he became interested in the petroleum industry. He started the shipment of oil from Russia, originating the practice of cleaning the hulls of the vessels to permit their return to Europe filled with rice and other Eastern products. The business was developed through the financial support of the Rothschilds, and Samuel was also closely associated with the Japanese Government in the development of trade, his firm being entrusted with the issue of the first Japanese gold loan of £4,500,000. In 1897 he established the Shell Transport and Trading Company, with a capital of £1,800,000, the name being taken from the original business in shells. At the time of his death the issued capital of this company was nearly £26,500,000. The amalgamation of the Royal Dutch Petroleum Company and the Shell Company occurred in 1907, and an enormous oil producing, refining, and distributing organization was developed. In 1898 Samuel was knighted for services rendered in the salvage of H.M.S. *Victorious*. Previously he had been Alderman of the City of London, serving from 1891–1902, and Sheriff 1894–95. He was Lord Mayor of London 1902–03, and was created a baronet in the latter year. In 1921 he was created a baron and in 1925 first Viscount Bearsted of Maidstone. He received an official vote of thanks from the Lord Commissioner of the Admiralty in May, 1915, for "services of the utmost importance to the fighting forces at the present time." Viscount Bearsted included among his honors that of Commander of the Order of Leopold of Belgium; Grand Officer of the Legion of Honor; Freeman of the city of Sheffield and of the town of Maidstone; Knight Commander of the Order of the Rising Sun of Japan, and Second Class, Sacred Treasure of Japan.

BEAUX-ARTS INSTITUTE OF DESIGN. A school of fine arts in New York City, planned after the École des Beaux-Arts in Paris; organized in 1916 by the Society of Beaux-Arts Architects, for the purpose of furnishing "instruction in the Arts of Science at a minimum cost to students, to bring art students under the criticism of artists who are engaged in active practice, to carry students beyond the academic study of the arts into the province of their application and practice, and to bring about coöperation among the various arts schools of the country." The Institute maintains a school of sculpture at its headquarters, in which the instructors are sculptors of high standing, who volunteer their services, each serving a term of three months in the life classes, while the instructors in architectural ornament serve for one month or the duration of the treatment of the style which is the subject of the study scheduled. A department of architecture is also conducted for the purpose of furnishing a systematic training in architectural design for draughtsmen in offices and for students of architecture in general. Prizes in architecture, sculpture, decoration and mural painting are offered to students throughout the United States. Working under the auspices of the Institute in 1926–27 there were 1602 architectural students, 209 students of sculpture, 131 in mural painting, and 68 in interior decoration. Except in the case of the Paris Prize competitions there are no restrictions as to the nationality or age of entrants.

The courses offered in the department of sculpture include: Life modeling and architectural sculpture; architectural ornament; life drawing; antique modeling; composition; a sketch class; and various special courses. During the year 1927–28 the committee on education in the department of architecture conducted twenty-eight competitions for the study of architecture and six for the study of archæology, in addition to the three competitions for the Paris Prize. Various prizes and scholarships were offered to its students through the Institute, the most important being: The Paris Prize for $3600, given by the Society of Beaux-Arts Architects for two and one-half years' study in architecture at the École des Beaux-Arts in Paris, (all the competitors, including the winner, in the final competition to receive $100 each, provided their work is considered satisfactory); and a scholarship of $1,200, for one year's study in Paris in sculpture.

The Institute issues a monthly *Bulletin* in which are published the results of all contests, with the reproductions of the best designs submitted. Officers elected at the annual meeting in November, 1927, were: Director, Whitney Warren; director of architectural department, Edward S. Hewitt; department of sculpture, Edward McCartan; decoration and mural painting, J. Monroe Hewlett; chairman of the board of trustees, Benjamin W. Morris; vice-chairman, William Adams Delano. Headquarters are at 126 East 75th Street, New York.

BECHTEREV, VLADIMIR MICHAELOVICH. Russian psychologist, died December 24. See PSYCHOLOGY.

BEEF. See LIVESTOCK.

BEEKEEPING. See ENTOMOLOGY, ECONOMIC.

BEETHOVEN CENTENARY. See MUSIC.

BEETLES. See ENTOMOLOGY, ECONOMIC.

BELGIAN CONGO. See CONGO, BELGIAN.

BELGIUM. A kingdom of western Europe, situated between France and the Netherlands. Capital, Brussels.

AREA, POPULATION, ETC. The total area, including the districts of Eupen and Malmédy, which were ceded to Belgium after the Treaty of Versailles, is 11,755 square miles. The population, according to the official census of 1920, was 7,465,782; estimated, Dec. 31, 1926, 7,874,601, which represented a density of 669 per square mile. The chief cities with their population as of Dec. 31, 1925, are: Brussels (with suburbs), 801,656; Antwerp, 300,026; Liège, 168,562; Ghent, 163,364. The movement of population in 1925 was: Births, 154,288; deaths, 102,179; marriages 174,761. The emigrants in 1925 numbered 35,271 and the immigrants, 46,920.

EDUCATION. In 1926 there were 8329 primary schools, with 795,285 pupils; 3598 infant schools with 243,345 pupils; and 2286 adult schools with 67,487 pupils; all of these three classes of schools were for elementary instruction. There were also six normal schools for training secondary school teachers and 81 for training elementary school teachers (11,876 students). For higher education there are various agricultural, technical, normal and art institutions. For collegiate education there are four universities, viz. the state universities at Ghent (1624 students in 1925–26) and Liège (2409 students) and the free universities at Louvain (3291 students) and Brussels (1637 students). A fifth university was created in 1923 when the colonial school at Antwerp and the School of Tropical Medicine were united to form the Colonial University.

PRODUCTION, MINERAL RESOURCES, ETC. Of the total area in 1920, 2,945,104 hectares, 1,340,415 are under cultivation, 519,781 under forest, 107,977 fallow or uncultivated, the rest roads, marshes, rivers, etc. The accompanying table from *The Statesman's Year Book* for 1927 shows the acreage and yield of the principal crops for 1925:

Crop	*Acreage*	*Produce in cwts.*
Wheat	368,757	7,880,164
Barley	79,719	1,813,574
Oats	661,586	12,388,230
Rye	577,316	11,026,496
Potatoes	399,515	3,100,870[a]
Beet (sugar)	180,204	2,167,594[a]
Tobacco	8,095	153,540

[a] Tons.

For further details with respect to agriculture see article on AGRICULTURE, *Table of Production by Countries*. On Jan. 1, 1926, there were 250,024 horses, 1,654,767 horned cattle, and 1,151,719 pigs. The most important industries in Belgium are artificial silk, motor cars, glass, iron and steel, lace, linen, and gloves.

Mineral production has always been an important industry in Belgium. The country has natural resources of coal and zinc and after the economic union with Luxemburg in 1922 gained ready access to iron ore. No later general statistics for mineral resources are available than those published in the preceding YEAR BOOK. The U. S. Bureau of Foreign and Domestic Commerce reported a consumption of 32,783,000 metric tons of coal in Belgium during 1926. This estimate was based on a supply of 38,410,000 tons, made up of 1,558,000 tons in stocks Jan. 1, 1926, and extraction of 25,581,000 during the year, and imports totaling 11,271,000 tons. Despite the heavy consumption of coal in Belgium and Luxemburg, the Belgian coal mines are far from prosperous. French, German, and British producers are able to land coal in Belgium at prices under Belgian quotations. As a result, the situation of the Belgian mines in 1926 was only fairly satisfactory even with the British coal strike, which resulted favorably on the Belgian situation and permitted reduction of stocks at mine heads from over 1,500,000 to 169,000 tons. The fundamental difficulty with the Belgian coal industry appears to be the low production per workman, which in turn is traceable to the poverty and uneven nature of the coal strata.

COMMERCE. Because of the great fluctuation of the value of the Belgian franc during 1926 a truer picture of the country's foreign trade during that period is gained by following the trade through respective quarters of the year, in conjunction with the successive stages in the stabilization of the franc, rather than by considering the trade only in its total import of 34,377,000 metric tons valued at 23,000,226,000 francs and its total export of 23,163,000 tons valued at 19,500,942,000 francs. In such a consideration, the first quarter may be described as the period of attempted stabilization, the second quarter as the period of devalorization, the third as the period of reorganization, and the fourth as the period of attained stabilization.

In the first quarter of 1926 the value of exports was only 73.9 per cent of that of imports. The average value of imports was 56 centimes per kilo and that of exports was 72 centimes per kilo. During the second quarter there was a heavy increase in imports and a considerable one in exports. The larger increase in imports and the change in the value of the franc, which drove the average value of imports up to 69 centimes per kilo while the value of exports was stationary at 72 centimes, resulted in a higher unfavorable trade balance, with exports worth only 65.8 per cent of imports. In the third quarter imports declined slightly in value and volume, while exports showed a very considerable increase under both headings. During this period the average value of imports fell to 69 centimes per kilo, while the value of exports went up 14 points to 86 centimes per kilo. Exports thus amounted to 93.7 per cent of imports, and thus resulted in a greatly improved position of the trade balance. In the fourth quarter, with stabilization an accomplished fact, a very different picture, with an entirely new one in Belgian foreign trade, was shown. Values, especially of exports, increased greatly, jumping by 15 points to 101 centimes per kilo; though the heavier volume of trade related principally to imports, their value only advanced slightly to 72 centimes per kilo. This gave Belgium a favorable trade balance for the first time in its history, the exports for the quarter equaling 102.5 per cent of the imports.

BELGIAN FOREIGN TRADE FOR 1926
[*Quantity in 1,000 metric tons; value in 1,000 francs*]

Imports	*Quantity*	*Value*
Live animals and animal products	369.9	3,150,324
Vegetable products	3,546.2	7,223,658
Mineral products	26,376.9	4,642,167
Prepared foods, drinks, and tobacco	379.2	975,843
Chemical and pharmaceutical products	655.9	775,448
Oils and greases	4.9	30,016
Leather and pelts, and manufactures thereof	2.8	240,051
Textiles	37.5	1,309,968
Clothing, all sorts	8.2	159,710
Wood and manufactures thereof	1,674.3	858,278
Rubber and manufactures thereof	4.1	138,427
Paper and manufactures thereof	206.2	478,344
Quarry products and ceramics	216 0	117,662
Glass and manufactures thereof	29.4	47,883
Metallurgical products	738.7	1,321,740
Machinery, all kinds, and railway supplies	89.7	934,149
Vehicles, except railway	27.6	299,282
Watches, clocks, and instruments	.6	48,689
Musical instruments	.9	34,532
Arms	.2	7,074
Other	7.6	206,981
Total quantity	34,376.8	....
Total value	23,000.2	23,000,226
Exports		
Live animals and animal products	168.4	2,041,607
Vegetable products	728.7	1,236,941
Mineral products	13,453.0	1,751,390
Prepared foods, drinks, and tobacco	343.1	689,681
Chemical and pharmaceutical products	1,602.5	803,738
Oils and greases	4.0	26,229
Leather and pelts, and manufactures thereof	14.5	496,231
Textiles	142.2	3,065,283
Clothing, all sorts	10.6	378,102
Wood and manufactures thereof	193.9	239,524
Rubber and manufactures thereof	3.4	124,309
Paper and manufactures thereof	69.3	808,881
Quarry products and ceramics	1,733.9	1,876,966
Glass and manufactures thereof	361.7	963,869
Metallurgical products	4,114.5	4,548,088
Machinery, all kinds, and railway supplies	161.8	790,658
Vehicles except railway	22.5	261,986
Watches, clocks, and instruments	.1	5.226
Musical instruments	.2	4,968
Arms	1.5	97,083
Other	33.5	295,232
Total quantity	23,163 3	....
Total value	....	19,500,942

FINANCE. The budget estimates for 1926 and 1927 were as follows:

	1926 *Francs*	*1927* *Francs*
Revenue	9,162,905,783	9,578,381,871
Expenditure	10,020,858,376	7,915,095,644

The principal items of the ordinary estimates for two years are shown as follows (in thousands of francs):—

Revenue	*1925* *1,000* *Francs*	*1926* *1,000* *Francs*
Direct taxes	1,240,500	1,796,000
Indirect taxes	1,056,800	1,071,410
Stamp duties	1,243,152	1,461,150
Miscellaneous	319,901	498,403
Expenditure		
Public debt	2,543,010	3,887,763
National defense	622,987	567,943
Finance	218,960	185,743
Public works	107,476	104,018
Education	430,188	420,275

On Jan. 1, 1926, the Belgian public debt amounted to 47,010,007,509 francs. On Oct. 25, 1926, a debt of £20,000,000 was contracted for thirty years for the purpose of stabilizing the franc.

COMMUNICATIONS. On Jan. 1, 1926, the Belgian merchant fleet was composed of 156 ships of 342,148 tons. The number of vessels entering Belgian ports in 1925 was 15,208 of 23,575,091 tons; cleared, 15,214 of 23,599,482 tons.

The Belgian State Railways were transformed into a private company—the Société Nationale des Chemins de Fer Belges—by law of July 23, 1926, and the statutes of the new company were approved by royal decree of Aug. 7, 1926. The duration of the company is 75 years, dating from Aug. 1, 1927. The capital of the company is fixed at 11,000,000,000 francs, represented by 20,000,000 preferred shares of 500 francs each and 10,000,000 common shares of 100 francs each. The government turned over to the company the rights of exploitation of all the lines previously exploited by the state. These rights include the use of the railways and their dependencies and buildings, with the exception of such buildings as are needed by the ministry of railroads, of repair shops, all fixed and rolling stock, tools and equipment of the shops, stations, warehouses, offices, merchandise, leases and contracts, etc. The Société Nationale des Chemins de Fer, at the close of 1926, operated 4809 kilometers of railroad lines, with a total trackage amounting to 13,197 kilometers, including double track, sidings, and branches. Only 300 kilometers of normal-gauge lines were operated in Belgium by other companies, and the Société can, therefore, be considered as practically monopolizing the Belgian rail transport system.

Operating receipts in 1926 amounted to 2,194,903,000 francs, and expenditures amounted to

1,803,999,000 francs. The rolling stock at the end of the year consisted of 3191 locomotives, 116,606 freight cars, and about 8500 passenger cars. It was too early to make comparisons between the financial results of operation of the railroads as a private company and as a state-owned monopoly. However, preliminary figures indicate that profits for the first ten months of exploitation under the new company (September, 1926, to June, 1927) amounted to 422,000,000 francs, after deduction of 25,000,000 francs each month (since January, 1927) for the constitution of a fund for the purchase of new equipment, whereas the profits for the corresponding period of 1925–26 under government exploitation amounted to only 107,000,000 francs.

GOVERNMENT. Belgium is a constitutional, representative, and hereditary monarchy. Executive power is in the king, acting through a responsible ministry; legislative power is in the king and two chambers, namely the senate and house of representatives. The former is elected partly by the direct and partly by the indirect vote of the people, the number being equal to half the number of members of the lower house and proportioned to the population of each province. Those elected indirectly are chosen by the provincial councils. The 186 members of the lower house are elected by universal suffrage directly, for four years. The reigning monarch in 1927 was Albert, who succeeded his uncle, Leopold II, Dec. 17, 1909. The cabinet as appointed May 20, 1926, was composed as follows: Prime Minister and Minister of Interior and Health, Henri Jaspar (Catholic); Foreign Affairs, Emile Vandervelde (Socialist); without portfolio, Emile Francqui; Justice, Paul Hymans; Education, Camille Huysmans; Finance and Colonies, Baron Houtart; Agriculture and Public Works, Henri Baels; Industry and Labor and Social Insurance, Joseph Wauters; Railways, Marine, Posts and Telegraphs, and Aëronautics, Edouard Anseele; National Defense, Comte de Broqueville.

HISTORY

ONE YEAR OF STABILIZATION. Looking back over the twelve month period since October, 1926, when the Belgian franc was legally stabilized, a striking picture of progress in the various branches of economic life in Belgium was presented. While there was perhaps some room for debate as to the extent to which the monetary reform has contributed to the satisfactory situation at the end of 1927, and, although in the light of later events, some contended that a higher rate could have been adopted, it was evident that the public in general was satisfied with all aspects of the stabilization plan and its workings. That it had been a pronounced success thus far was beyond question. Belgium at the end of 1927 was in a far better position than at the beginning of the year and might face the immediate future with confidence.

According to M. Louis Franck, director general of the Banque Nationale, who administered the stabilization plan since it was conceived and put into operation by M. Emile Francqui, the minister without portfolio (see the preceding YEAR BOOK), the benefits of the monetary reform were seen in all divisions of Belgian economic life. The speculative element in business, resulting from exchange fluctuations had ceased, exports had been maintained, the cost of living, though higher, was less than in other countries where social conditions were comparable, wages had not been cut, and the enhanced value of Belgian securities represented billions of francs in profits. Moreover, deposits in Belgian savings banks had increased largely. Since stabilization became effective it had not been necessary to support the franc in any way, either at home or in the exchange markets of the world; the fluctuations in its value had been solely between the gold points, and on numerous occasions the belga had been quoted above par.

One of the earliest and most urgent measures of the stabilization programme was the consolidation or liquidation of the floating debt. This was partially accomplished by the conversion of internal short-term treasury notes into railway stock, following the organization of an autonomous company to operate the state railways. It was further provided that 1,500,000,000 francs should be set aside each year toward the liquidation of the short-term obligations, which on June 1, 1926, amounted to 15,387,000,000 francs. It was announced late in 1927 that by January, 1928, the short-term indebtedness would be reduced to 3,978,000,000 francs, of which 2,000,000,000 francs were due the Banque Nationale. The debt situation had been eased to such an extent that reduction of annual contribution to the amortization fund to 1,200,000,000 francs was being contemplated, the remaining 300,000,000 francs to be used in tax reduction. There was, however, in conservative circles, a feeling that the larger payments should be continued until the short-term debt was completely liquidated, as the country seemed able to support the prevalent rates of taxation.

The reassuring effect of stabilization on the mass of the people was most strikingly illustrated by the increase of State-guaranteed savings accounts. During the period of inflation and currency depreciation preceding legal stabilization there was a tendency to spend money as fast as earned, for fear that it would decline still further in buying value, but with a guaranteed currency the normal habits of thrift were resumed. In October, 1926, the guaranteed savings accounts amounted to 2,600,000,000 francs, and by September, 1927, the sum had grown to 3,270,000,000 francs, in spite of a slow but more or less continuous rise in the cost of living. The number of operations under the government postal-check system increased over the same period from 17,400,000 to 19,325,000, with a corresponding increase in the amounts that were involved.

As a natural result of the plenitude of money seeking employment, the stock exchange was extremely active. There was, however, an element of danger in the situation, owing to widespread speculation by persons in moderate or poor circumstances. All classes of securities moved upward in general values during the year, and some reached fantastic heights. Domestic industrial shares received the least support, but bank stocks, foreign tramway and electrical enterprises, and particularly colonial developments, skyrocketed. The interest in these securities was based, not on present returns, but on past earnings that had accumulated very large reserves, and on future prospects. Any serious setback to colonial shares would be disastrous, for it would perhaps retard the legitimate flow of capital into colonial development, with which the future prosperity of Belgium is so closely linked.

Fears of a crushing increase in living charges and production costs, following stabilization, proved groundless. While there had been gradual increases in the retail price index, they had not been at all dangerous. Retail prices still remained well below the world level and in some respects even below pre-war prices on a carefully weighted gold basis. The wholesale price index had fallen. In October, 1926, the retail index stood at 705 on a paper basis and 102 on a gold basis, and at the end of 12 months it had risen to 794 and 115, respectively. The wholesale index, on the other hand, which stood at 856 and 123, had fallen to 837 and 120.8. During the first year of stabilization Belgian industries as a whole had either improved or held their positions; coal alone had gone backwards. Unemployment maintained its remarkably low average, the proportion of total unemployment varying between 2 and 3 per cent, according to seasonal activities in certain trades.

EUPEN AND MALMEDY. The question of the affection of these districts for Belgium was brought up time and again during the year. The two areas had been ceded to Belgium after a plebiscite held in accordance with the Treaty of Versailles. The Socialist element has been insistent in its demand for a new plebiscite on the grounds that the people had been denied the right to express their real minds in the matter. In answer to the demand of a Socialist deputy representing these districts, Prime Minister Jaspar stated that no new plebiscite would be held and furthermore accused German propaganda of being the primary cause for the unrest there. Other deputies in reply to the demand of the Socialists insisted that the government take stringent steps to eradicate the German propaganda agencies in the territories.

CABINET CHANGES. Throughout the year there had been a grave discussion over the question of the strength and duration of service of the armed forces of the country. The Socialists had been insistent in their demand for a reduction in the length of military service to six months instead of the prevailing service which in some cases ran to thirteen months. The King and the cabinet had been firm opponents of the reduction measure, and from time to time brought up the old German bogey and bemoaned the fact that their eastern frontiers were woefully weak and in case of another attack such as that of 1914 the country would be more easily overrun. The Socialists under the leadership of M. Vandervelde, the Foreign Minister, took the point of view that a reduction was not only right but more economical and in accordance with the stringent financial plans of the government. The clash resulted in the resignation of the Jaspar cabinet, composed of a coalition of Catholics, Socialists, and Liberals, which was formed in 1926 to fight "the battle of the franc." The Jaspar group fell on November 21 because of inability of the Socialists to agree with the other members on the question of military policy. On the next day Premier Jaspar formed a new cabinet, also a coalition, which based its strength on the grouping of the Catholic Liberals, and Christian Democrats, thus substituting the last named party for the former Socialist group. M. Vandervelde was replaced by Paul Hymans, who was as well known internationally as a strong supporter of the League of Nations as M. Vandervelde himself. The new cabinet stated that it would turn the question of military service over to a committee formed from parliamentary and military experts, with express orders to let their decision be based upon the tenets of "security."

BELL, CARL. American sculptor, died at Chicago, Ill., June 18. He was born in Germany in 1858, and was a graduate of the Academy of Fine Arts in Munich. Previous to his going to the United States he did work for King Ludwig of Bavaria, superintending the building of castles in the Bavarian Alps. First settling in New York, he later went to Chicago to direct the sculpture for the Chicago Exposition of 1893, and at its conclusion established himself in that city. He was director of sculpture for the Buffalo and St. Louis fairs, and was also interested in the Paris Exposition of 1900.

BENJAMIN, GEORGE HILLARD. American engineer and chemist, died at New York, N. Y., November 10. He was born at New York, Dec. 25, 1852, and graduated from Union College in the class of 1872, later taking the degree of M.D. at Albany Medical College in 1874. He studied in France and Germany, receiving the degree of Ph.D. in 1882 from the University of Freiburg. He practiced medicine and studied law, being admitted to the bar in 1884. He was editor of several works of reference in the field of applied mechanics, and became a consulting engineer and patent expert, serving many large manufacturing and electrical corporations. As one time he was the American representative of the Siemens-Halske Company of Germany. During the World War he developed sound-detecting devices for protection of vessels against submarines. He accumulated a large library of scientific and other books, and wrote much.

BENNINGTON, BATTLE OF. See CELEBRATIONS.

BENTON, GUY POTTER. American educator and religious worker, died at Minneapolis, Minn., June 29. He was born at Kenton, O., May 26, 1865, and after graduating from Baker University received the degree of A.M. from Ohio Wesleyan University; he also studied at the University of Wooster and at Berlin. Entering upon educational work, he became superintendent of schools at Fort Scott, Kan., in 1890, and in 1895 was made assistant state superintendent of public instruction for Kansas. In 1896 he became professor of history and sociology at Baker University, and in 1899 was elected president of Upper Iowa University, serving until 1902, when he was called to Miami University as president. In 1911 he was elected president of the University of Vermont, a position he held until 1919, and in 1921 he became chief educational consultant and president of the University of the Philippines, serving until 1924. During the World War he was abroad with the American Expeditionary Forces and became general secretary for the Y. M. C. A. for the City of Paris, September–November, 1917, and chief organizing secretary for the Y. M. C. A. with the American Expeditionary Forces, November, 1917, and June, 1919. He was chief secretary of the Eighth Region of the A. E. F. in 1919, and a member of the United States Army Educational Corps and chief educational director of the American Army of Occupation, with headquarters at Coblenz, Germany. After his discharge from the army in 1919 he was awarded the Distinguished Service Medal for his war service. He published *The Real College* (1909).

BEREA COLLEGE. A non-sectarian, coeducational institution at Berea, Ky.; founded in 1855, and designed to serve the educational needs of the mountain people of the Southern Appalachian region. The enrollment for the autumn of 1927 was 1960, distributed as follows: college, 419; normal, 300; academy, 454; foundation-junior high school, 634; training school, 153. The enrollment in the summer session totaled 322, of which 145 were in the college, 100 in the normal school, and 77 in the academy. The faculty had 94 members, distributed as follows: college, 29; normal, 11; academy, 19; foundation-junior high school, 30; training school, 5. The endowment amounted to $7,698,948.23 and the income for the year ending June, 1927, was $329,597.07. The library contained 50,000 volumes. A new science building, a men's gymnasium and an animal husbandry building were under construction during the year. President, William J. Hutchins, D.D., LL.D.

BERMU'DA. A British colony in the West Indies consisting of a group of small islands lying about 580 miles from Cape Hatteras, N. C. About 20 of the islands are inhabited. Because of its picturesqueness and proximity to New York (677 miles) it is a favorite winter resort for American tourists, who number annually some 28,000. Area, 19.3 square miles; population, according to the census of 1921, 20,127 (7006 white). The estimated civil population in 1925 was 27,741. Statistics for commerce and finance follow:

	1924	*1925*
	£	£
Imports	1,815,023	1,325,041
Exports	446,252	166,020
Revenue	329,139	248,476
Expenditure	312,969	312,283

In 1925 the total tonnage of vessels entered and cleared was 2,749,780 tons of which 2,367,482 were British. The public debt in 1925 was £45,000. The chief products are: Potatoes, onions, lily bulbs, and various vegetables. The chief imports in 1925 were: Provisions, beef, bran, clothing, cotton goods, electrical goods; flour; hardware; fuel oil; and woolen goods. The chief exports are: Potatoes; onions; other vegetables; bulbs, and whiskey. The administration is under a governor assisted by an executive council of seven members and a legislative council of nine members appointed by the king and an elected assembly of 36 members. Governor in 1927, Lieut-Gen. Sir Louis Jean Bols.

BERNARD, The Most Rev. and Rt. Hon. John Henry. Provost of Trinity College, Dublin, died in Dublin, August 29. He was born in India, July 27, 1860, the son of a civil engineer practicing in that country, and was educated privately before entering Trinity College, Dublin, where he received the degree of M.A. in 1883. He became fellow and tutor in Trinity College the following year, and was ordained in 1886, serving as chaplain to the Lord Lieutenant of Ireland, 1886–1902. He served as King's lecturer in divinity at Dublin, 1888–1911, and was treasurer of St. Patrick's Cathedral, 1897–1902, and dean, 1902–11. He was Bishop of Ossory, Ferns and Leighlin, 1911–15, and was appointed Archbishop of Dublin in 1915 on the resignation of Dr. Peacock. In 1919, on the death of Sir John Mahaffy, Dr. Bernard, who had been appointed vice chancellor of the university, was chosen by the Crown to succeed Mahaffy as Provost of Trinity. Under the régime of the Free State, Trinity College contributed to the national life and continued its standard of high scholarship. In addition to Dr. Bernard's administrative work, he was a scholar and preacher of force and reputation, and was frequently called to Oxford and Cambridge as select preacher. He was president of the Royal Irish Academy, 1916–21; warden of Alexandra College, Dublin, for the higher education of women, 1903–11; and had many Government and ecclesiastical honors including degrees from Oxford, Durham and Aberdeen. His publications, in addition to translations and editorial work, included: *From Faith to Faith, University Sermons* (1885); *Via Domini, Cathedral Sermons* (1898); *the Prayer of the Kingdom* (1904); *St. Patrick's Cathedral, a Handbook and a History* (1904); *Archbishop Benson in Ireland* (1896); (in conjunction with Professor Atkinson) *The Irish Liber Hymnorum,* (2 volumes) (1898); *The Pastoral Epistles of St. Paul* (1899); *The Second Epistle to the Corinthians* (1903); *The Works of Bishop Butler* (2 volumes) (1900); *The Psalter in Latin and English* (1911); *The Odes of Solomon* (1912); *Christmas Thoughts* (1913); *Verba Crucis* (1915); *Easter Hope* (1916); *Studia Sacra* (1917); and *In War Time* (1917).

BES'SARABIA. Formerly a government of the Russian Empire; joined to Rumania in March, 1918. See Rumania.

BEVERIDGE, Albert Jeremiah. American statesman and historian, died at Indianapolis, Ind., April 27. He was born on a farm on the border of Adams and Highland Counties, Ohio, Oct. 6, 1862, the son of a farmer who was then, together with four half-brothers, serving in the Union Army in the Civil War. His boyhood was passed on the farm in humble circumstances, and he engaged in active work as a plowboy, railroad laborer and teamster. However, he was able to study and make his way through the local high school so that at 19 he entered Indiana-Asbury (later DePauw) University, where he worked his way through college. He graduated in 1885, but with impaired health and was forced to live in western Kansas and Colorado among the cowboys. During his college days he was successful as a declaimer and orator, and he was engaged as a political orator by Republican managers. On his return from ranch life he settled in Indiana, and read law in the office of Joseph E. McDonald, United States Senator. He was admitted to the bar in 1887, and his first case before a jury was with Benjamin Harrison, later elected President of the United States, as an opponent. He opened his own office in 1889, and soon won wide fame as an orator and as a lawyer. He devoted himself steadfastly to his practice, declining election or appointment to political office. In 1896 he delivered a speech at the Chicago Auditorium on the invitation of the Republican National Committee, in reply to one made in New York by John P. Altgeld. From this time on a number of his addresses, such as that on "The Vitality of the American Constitution," delivered before the Pittsburgh Bar Association in January, 1898, attracted widespread attention. In the last of these addresses, having to do with the war with Spain in which the United States was about to engage, he predicted its outcome and the activity of the United States in the Philippine archipelago. After this speech Beveridge was put forward as a candidate for Senator by an enthusiastic following of Republicans in Indiana, and he was sent to the United States Senate for two terms, 1899–1911. In the Senate he ranked high as an orator and in debate, and was considered a scholar of statesmanship by both friends and opponents. On Jan. 9, 1900, he made a speech, demanding that America retain the Philippines as a possession, which was hailed as a pronouncement of an American policy, and stimulated Americans to become interested in foreign affairs and in a broader outlook on national destiny. Mr. Beveridge as a result of his studies was a conservative constitutionalist, following in some measure, however, the policies of Roosevelt. He became leader of the Progressives during the Taft administration, failing on this account to be reelected to the Senate for a third term. He was active in the Progressive party during the campaign of 1912, serving as chairman of the National Convention in Chicago which nominated Theodore Roosevelt. He was the Progressive candidate for Governor of Indiana, but was not elected, and in 1914 he was again defeated as the Progressive candidate for the United States Senate. In 1922, however, he became the regular Republican candidate for Senator, but was defeated by Samuel M. Ralston, his Democratic opponent. Beveridge, who was an earnest student not only of law but of history and economics, enjoyed a high reputation as an author and as a historian. He was a prolific writer, and among his many works his *Life of John Marshall*, the first two volumes of which were published in 1916 and the last two in 1919, was a scholarly production and a crowning effort, for which, in 1923, he was awarded the Roosevelt medal for a "valuable contribution to history." At the time of his death he was engaged on a biography of Abraham Lincoln along lines which had made his *John Marshall* so appreciated and successful. His various writings include: *The Russian Advance* (1903), a volume containing the impressions of his travels in Siberia and Asia (the conclusions of which, it might be said in passing, were seriously discredited by the Russo-Japanese War); *The Young Man and the World* (1905); *The Bible as Good Reading* (1906); *The Meaning of the Times* (1907); *Americans of To-day and To-morrow* (1908); *Work and Habits* (1908); *Pass Prosperity Around* (1912); *The Invisible Government* (1912); *What Is Back of the War* (1915); *The State and the Nation* (1924); and *The Art of Public Speaking* (1924). His *What Is Back of the War* was seriously criticized as pro-German in that he considered the struggle from a German point of view, and the volume was later barred from many libraries and training camps. Senator Beveridge was among the Republicans who strongly opposed the United States, joining the League of Nations and the World Court, and in many of his addresses he urged adherence to and the consideration of the fundamental ideas of the Constitution and the principles embodied therein. Even before his death it was thought that his reputation as a historian and an author, based largely on his *Life of John Marshall*, was greater than his fame as a statesman and an orator. Senator Beveridge was honored with the degree of LL.D from DePauw University in 1902, from the University of Pennsylvania in 1920, from Lafayette College in 1921, and from Brown University in 1921.

BIBLE LANDS. See ARCHÆOLOGY.

BIBLE SOCIETY, AMERICAN. A society founded in 1816 which strives for a wider circulation of the Bible to all people, without denominational or racial discrimination. The Bibles are furnished at cost prices and distributed through the Society's home, foreign and other agencies. In 1926 home agencies distributed 3,060,081 volumes; the foreign agencies 5,705,290. The Society also supplied the Scriptures in 168 languages during the year, including editions in Roman and Gothic characters and embossed systems for the blind. The total issues of the Society in 111 years of service have been 184,028,960 volumes, of which 102,376,856 were distributed in the United States and 81,652,104 in foreign lands. The number of issues in the United States in 1926 was 4,352,703, of which 3182 were for the blind, and in other lands 5,554,658, making a total of 9,907,361. Workers in the 10 home agencies totaled 850, of whom 419 were volunteers; workers in the 12 foreign agencies numbered 2254, of whom 376 were volunteers. The work of revising and translating the Bible into additional languages was going on constantly and progress was reported to have been made during the year in translation and revision work in Yiddish, Spanish, Miskito, Cakchiquel, Quiché, Mam, Aymara, Peruvian Quechua, and Brazilian-Portuguese for the western hemisphere, Canton Colloquial for China, Samareño, Bicol, Tagalog, and Ilocano, for the Philippines, Siamese and Tai Yuan for Siam, and Olunyore, Bulu, Luba-Lulua, and Shilluk, for Africa.

The total receipts of the Society for the year from invested funds, gifts, sale of books, etc., amounted to $1,057,680.17; its expenses were $1,067,049.81. The Society was affiliated with 97 auxiliary Bible societies throughout the United States, which assisted in the circulation of the Scriptures and contributed to its expenses. In 1926 the contributions received from this source amounted to $22,937.97. The officers in 1926 were: E. Francis Hyde, President; the Rev. William I. Haven, LL.D., and the Rev. Arthur C. Ryan, General Secretaries; the Rev. Eric M. North, Ph.D., Associate Secretary; the Rev. Lewis B. Chamberlain, D.D., Recording Secretary; and Gilbert Darlington, Treasurer. The official organ of the Society is the *Bible Society Record*. Headquarters are at the Bible House, Astor Place, New York City.

BICYCLING. See CYCLING.

BILLIARDS. The advance in popularity of three-cushion billiards was the outstanding feature of 1927 in this sport. William Hoppe of 18.2 balkline fame announced that he had practically decided to devote his time henceforth to the angle variety of the game. Otto Reiselt successfully defended his three-cushion title three times during 1927, first against Augie Kieckhefer and later against Gus Copulos and Allen Hall as his challengers.

Four different players held the 18.2 balkline championship during the year. Eric Hagenlacher lost the title to William Hoppe and then Hoppe successfully defended his crown against Welker Cochran in Boston only to have the latter triumph in the national tournament held at Washington. Cochran retained the title in a match with Hagenlacher but lost it to Jake Schaefer in a three-day match played in New York City.

The pocket billiard championship was held by four players in 1927. Ralph Greenleaf, title holder at the opening of the year, bowed to Erwin Rudolph who in turn lost to Tommy Hueston. Hueston failed to defend the crown, surrendering it to Frank Taberski.

J. Howard Shoemaker regained the national amateur pocket billiard championship. John A. Clinton, Jr., successfully defended his national amateur 18.2 title while the amateur three-cushion honors went to E. H. Ruerk.

BINGHAM, Amelia. American actress, died at New York City, September 1. She was born at Hicksville, Ohio, Mar. 20, 1869, the daughter of a hotel proprietor named Smiley. She studied at Ohio Wesleyan University, where she took part in amateur theatricals, but was not graduated, joining, on the advice of Lloyd Bingham, a traveling theatrical company which he managed. Her first professional stage part was played on the Pacific Coast, in a melodrama with McKee Rankin. She was married to Mr. Bingham, and in 1893 she made her New York début at the People's Theatre in the Bowery, playing a leading rôle in the melodrama, "The Power of Gold." In such melodramas as "The Shaughran," "Colleen Bawn," "The Village Postmaster," and "Captain Impudence," she was a popular favorite. In 1897 she came under the management of Charles Frohman, appearing as the star of "The White Heather" and other productions, including "The Pink Domino," "The Proper Caper," "On and Off," "At the White Horse Tavern," "The Cuckoo," and "His Excellency, the Governor." In 1900, after appearing in "Hearts and Trumps," she determined to be her own manager, and opened at the Bijou Theatre on Jan. 15, 1901, in Clyde Fitch's "The Climbers." Other successes of this time were in "Lady Margaret," "The Modern Magdalen," and "The Frisky Mrs. Johnson." Between 1903 and 1909 she was the star of several successes, and also appeared in stock companies. In 1909 she was leading lady in "Big Moments from Great Plays," in England, and in 1913–14, with Douglas Fairbanks and William H. Crane, she played in "The New Henrietta" and a revival of "The Climbers." In the latter part of her life her activity was hampered more or less by illness. Her husband, Lloyd Bingham, died in Christiania, Norway, in 1915, while a member of the Henry Ford Peace Mission. Financial reverses forced her to return to the stage, and she played in "The Pearl of Great Price" in 1926, though in the previous year she had taken a part in the revival of Pinero's "Trelawny of the Wells." Mrs. Bingham was the first of the American women who were producer-managers, and for many years was one of the favorites of the American stage. She believed in upholding the better traditions of the drama, and deplored the decline of the stage.

BINGHAM, Robert. American educator, died at Asheville, N. C., May 8. He was born at Hillsboro, N. C., Sept. 5, 1838, and after studying at Bingham School entered the University of North Carolina, from which he graduated in 1857. He served through the Civil War with the Army of Northern Virginia. From 1873 to 1920 he was superintendent of the Bingham School, which had been founded in 1793 by his grandfather. He was a colonel in the North Carolina National Guard, and a director of the American National Bank and the Wachovia Loan and Trust Company. He was president of the North Carolina Historical and Literary Society, and Grand Master of the Freemasons of North Carolina, 1883–85.

BIOCHEMISTRY. See Chemistry.

BIOGRAPHY. See Literature, English and American; French Literature; German Literature, etc.

BIOLOGICAL CHEMISTRY. See Chemistry.

BIOLOGY. See Zoölogy.

BIRDS. See Zoölogy.

BIRTH RATE. See Child Welfare.

BLACK, Ebenezer Charlton. Professor of English at Boston University, died at Cambridge, Mass., July 11. He was born in Liddesdale, Scotland, June 18, 1861, and graduated at Edinburgh University, where he received highest honors in rhetoric, Anglo-Saxon and English literature, and poetry. He was at Queens College, London; and Liddelbank, Liddesdale, 1884–91. In the latter year he became lecturer in English literature at Harvard University, Cambridge, Mass., serving until 1893, when he became principal of the language and literature department of the New England Conservatory of Music at Boston. This position he held until 1900, when he became professor of English literature at Boston University. He was also a lecturer in English literature at the Emerson College of Oratory, a member of the University Extension Commission, and honorary librarian of Boston University. He was a member of the Early English and Scottish Text Societies and of the Royal Society of Arts, and president of the New England Association of Teachers of English and of the Boston Drama League. His writings include: *Early Songs and Lyrics* (1886); *Shakespear Manual for Teachers* (1915); *University Addresses* (1916); and *From a Professor's Notebook* (series) (1922). He was the editor of the *New Hudson Shakespear.*

BLAISDELL, Albert Franklin. American author and physician, died at Winchester, Mass., March 17. He was born at South Hampton, N. H., Aug. 31, 1847, and after graduating from Dartmouth College in 1869 took his medical degree at Harvard University in 1879. He was in practice at Providence, R. I., until he retired, spending the latter part of his life in writing. His publications include a number of text books and juveniles such as: *First Steps with American and British Authors* (1879); *Our Bodies and How We Live* (1884); *How to Keep Well* (1885); *Child's Book of Health* (1886); *Readings from the Waverley Novels* (1888); *Stories of the Civil War* (1890); *Stories from English History* (1897); *Practical Physiology* (1897); *The Story of American History* (1900); *Life and Health* (1902); *Hero Stories from American History* (1902), and *Short Stories from American History* (1905); *English History Story Book* (1910); *American History Story Book* (1911); *Child's Book of American History* (1913); *Heroic Deeds of American Sailors* (1915); *American History for Little Folks* (1917); *Pioneers of America* (1919); and *Log Cabin Days* (1921).

BLOCK SIGNALS. See Railways; Railway Accidents.

BOHE'MIA. A constituent member of the state of Czechoslovakia (q.v.) since the defeat of the Central Powers in 1918; formerly a crownland of Austria; situated in the northwestern part of the former Austro-Hungarian Empire, with Saxony and Silesia on the north, Moravia on the east, and Lower and Upper Austria on the south. Area, including the small Austrian and German territories which were added by the peace treaty to Czechoslovakia, 20,102 square miles; population, Feb. 15, 1921, 6,670,582. Bohemia is represented in the Czechoslovak legislature by nine deputies and five senators.

BOILERS. The trend toward larger boiler units and higher rates of forcing continued in 1927, apparently with the idea of keeping pace with the increased size of steam turbines and at the same time holding to a minimum the number of boilers per turbine. Several boilers, designed for outputs of 350,000 to 450,000 pounds of steam per hour were in service and had actually exceeded this evaporation, which was capable of supplying 40,000 to 50,000 kilowatts. A number of similar size units were on order at the end of the year as was also a boiler designed for an evaporation of 750,000 pounds of steam per hour. This last was to be installed in a large central heating plant. These high rates of evaporation had brought about revolutionary changes in furnace design during the last few years and had resulted in extensive use of water walls surrounding the furnace. Such walls, originally designed to reduce furnace maintenance through keeping down furnace temperatures, also form a very considerable portion of the heat-absorbing surface, especially the radiant heat.

However, furnace design was still in a state of evolution both as to proportions and as to type of walls. The fin-type and the refractory-faced water walls were both extensively used in large boilers, and air-cooled refractory walls were common with smaller units and those not forced to such high steaming rates.

A form of furnace that met with success during 1927, with pulverized coal, was what was called the "slagging" furnace. In this, a development of the well-type furnace, no attempt is made to cool the molten ash which is periodically drawn off from the bottom of the furnace. Water jets impinging on this molten stream break up the slag into small pieces which are sluiced away. With pulverized coal the aim has been to secure complete combustion and the greatest possible heat release per cubic foot of furnace volume by increasing the turbulence within the furnace. Modifications in burner design and placement were toward this end.

High combustion rates were accompanied by higher exit gas temperatures which were responsible for more extensive use of the air preheater. This not only increases the overall efficiency through recovery of waste heat but the hot air also promotes better combustion within the furnace. Air preheaters are used both with stokers and pulverized coal. Automatic combustion control continues to gain favor not only among central stations but also in many of the more important industrial power plants.

There was little change in the situation as regards steam temperatures and pressures during the year. With a few exceptions, principally abroad, the upper limit in steam temperature remained at about 750° Fahrenheit, although research work continued, along metallurgical lines, with a view to producing alloy steels that would withstand higher temperatures for long periods without change in form or strength. Considerable progress was made but there had not been opportunity for conclusive long-time tests, such as yet to warrant the design of a station for operation at the higher temperatures. Moreover, the cost of the metals selected must not be such as to offset the gain secured through employment of the higher temperatures.

Following the lead of the Edgar Station of the Electric Illuminating Company of Boston with 1200-pounds and the Lakeside Station at Milwaukee with 1390 pounds, the Kansas City Power & Light Company announced its plans during the year for the installation of two 1400-pound units at its Northeast station. Also late in the year it was given out that a new station, to be built near Wilmington, Del., by the American Gas & Electric Company and the American Electric Power Corporation would probably employ 1200 pounds steam pressure. In the industrial plant field there was a boiler supplying process steam to a pulp and board mill in the South which operated at 1000 pounds pressure. No serious difficulties had been encountered in operating at these high pressures, as a result of which the Edgar Station had recently placed in operation two more high-pressure boilers serving a 10,000-kw. turbine. The 750-pound installation at the Solvay Process Company at Syracuse, reported in 1926 as under construction, was in successful operation. These high-pressure American installations were either operating or were soon to operate, on regular commercial loads.

In the intermediate range of 400 to 750 pounds a number of new installations were announced. One large boiler manufacturer reported 70 per cent of his orders for pressures between 300 and 450 pounds and 15 per cent between 450 and 750 pounds. These higher boiler pressures were not confined to central stations, as an appreciable number of industrial plants, taking advantage of the economies of high steam pressure and the development of the high-back-pressure turbine exhausting to process, had gone to such pressures in their new plants or in remodeling their old plants.

In Europe, notably Germany, there was also a marked trend toward relatively high steam pressures, especially in industrial plants. Many of these were operating at around 425 pounds. This was the outcome of the forged and welded drum construction being offered by several well-known Continental firms. Riveted drums were largely used up to 300 or 350 pounds above which the forged and welded drum was generally employed.

Several boiler installations had been operating for two or three years in Europe at pressures ranging from 650 to 1500 pounds. Some of these were covered in last year's review. They are the 1500-pound Loffler boiler in Moravia, the 1500-pound Sulzer unit at Winterthur, Switzerland, the 650-pound Luloff boiler at Amsterdam, the Schmidt boiler operating at 650 lbs. at Weringerade, the 868-pound Borsig boiler at Tegel, the 1500-pound Benson boiler at Siemensstadt and the Langerbrugge Station in Belgium operating at 750 pounds. With two or three exceptions, however, these are relatively small boilers operating under more or less experimental conditions. The Siemens-Schuckert Works completed a larger Benson boiler, burning powdered coal and designed for an output of 66,000 pounds of steam per hour at 3200 pounds steam pressure. This steam is then throttled to 1500 pounds, in accordance with the Benson principle, and reheated to 750 degrees before being delivered to the turbine. A line on the explosion hazard at such high pressures was afforded by the bursting of two tubes on the smaller boiler. The rupture was accompanied by a hissing noise and the oil burner flame was extinguished. No serious damage resulted. This was because of the small tubes and the small body of hot water.

An operating condition brought about by high pressures and high rates of evaporation is the necessity for purer feed-water. This in many cases has resulted in the installation of evaporators for supplying make-up.

While the use of pulverized coal continued to extend, it by no means had the field to itself. Spurred on by the competititon from pulverized coal and the demand for high rates of forcing boilers, stokers were being greatly improved during the last few years. Usually the choice between pulverized coal and stokers can be made only after weighing a number of local factors.

In the pulverized coal field the unit mill has made large gains. A recent survey was made by the Prime Movers Committee of the National Electric Light Association of 203 plants in which boilers of over 500 horse power were installed. Of these 80 were central stations and 123 industrial plants. The unit system in these installations outnumbered the centralized preparation and storage system by three to one. In the large number of pulverized coal installations on boilers under 500 horse power the unit system largely predominates. Coal preparation costs in the large plants usually fall close to 25 cents per ton, including power, labor and maintenance. Application of pulverized coal to marine service was made by the U. S. Shipping Board on the steamship *Mercer* which at the end of the year returned from a round trip to Europe and reported not only satisfactory results, but considerable savings in both fuel and labor.

Mercury Boiler. Development of the mercury boiler by W. L. R. Emmet has proceeded over a period of years during which time a number of successive designs have been tried out at the Dutch Point Station of the Hartford Electric Light Co. The latest step has been the installation, during 1927, of a 10,000-kilowatt unit at the South Meadow Station of the same company, which was to operate on the regular commercial load. This latest unit would operate on pulverized coal.

Briefly, the equipment consists of a mercury boiler, a mercury vapor super-heater, a mercury economizer, an air-preheater, a mercury vapor turbine, a mercury condenser, which also serves as the steam boiler, and a steam super-heater. The mercury vapor is generated at a pressure of 70 pounds per square inch gauge and passes to the five-stage turbine from which it is exhausted at about one pound guage to the condenser, or steam boiler. Here steam is generated at 350 pounds. The rated capacity of the steam boiler is 125,000 pounds of steam per hour, which goes into the existing steam mains of the station and is in addition to the 10,000 kilowatts generated by the mercury turbine. Unlike previous mercury boilers, the new unit is made up of seven drums from each of which there projects downward a bank of 440, 2¾-inch dead-end tubes. Within each of these tubes are two concentric tubes. The inner one is a circulating tube through which the mercury liquid flows down from the drum. Between this tube and the second, or filler tube, is a dead-air space serving as an insulating medium to prevent heat passing to the mercury on its downward course. Vaporization and upward circulation take place in the small annular space between the filler tube and the outer tube.

BOKHARA, bo-kä'rȧ. A state in Central Asia, formerly a dependency of the Russian Empire, later known as the Bokharan People's Republic, and since February, 1925, a part of the Soviet Socialist Republic of Uzbek. It is bounded on the north by the Russian provinces of Samarkand and Syr-Daria; on the south by Afghanistan; on the southwest by Transcaucasia and Khiva; and on the east by Ferghana. Estimated area, 79,000 square miles; estimated population, 3,000,000. The chief towns with their estimated populations are Bokhara, 75,000, and Karshi, 25,000. The religion is chiefly Mohammedan. The chief products of Bokhara are corn, fruit, silk, tobacco, cotton, hemp, and farm animals; and the chief minerals are gold, salt, alum, and sulphur. The trade is mainly with India to which raw silk is exported and from which tea, indigo, Dacca muslin, etc., are imported. By the revolution of Aug. 30, 1919, the Amir was dethroned and the Soviet government was set up, which formed a military and political agreement with Russia. In February, 1925, Bokhara and Khiva were joined together to form the Soviet Socialist Republic of Uzbek.

BOLIV'IA. A South American republic situated in the interior and bounded by Brazil on the east and Chile on the west. Sucre is the seat of the supreme court and is historically regarded as the capital, but the actual seat of the government and the largest city is La Paz.

Area and Population. Estimated figures for the area and population of Bolivia place the latter at 2,155,000, as against 1,796,500, the population shown by the last official census, taken in the latter part of 1900. The area of the republic is given as 1,332,808 square kilometers, or 506,467 square miles. In 1924 the estimated population of La Paz was 118,250. Other large towns with their estimated populations at the same time were; Cochabamba, 34,281; Potosi, 30,122; Sucre, 16,194; Tarija, 10,843; Oruro, 32,908; Santa Cruz, 18,315; and Trinidad, 6269.

Education. Elementary education which is free and compulsory, is under the care of the municipalities and the state. According to the report of the Minister of Public Instruction the school statistics for the year 1926 were as follows:

Type of instruction	*Number of schools*	*Number of teachers*	*Number of students*	*Average attendance*
University education .	8	107	802	682
Special instruction ..	22	177	1,913	1,655
Secondary education .	27	403	4,213	3,794
Federal primary education	672	1,301	40,595	35,811
Municipal primary education	381	708	24,361	21,836
Private primary education	298	509	17,209	15,226

(*Continued on page 115*)

Type of Instruction	*Number of schools*	*Number of teachers*	*Number of students*	*Average attendance*
Schools of religious orders	224	224	3,801	3,331
"Delegacional" schools	23	23	855	769
Total	1,655	3,452	93,749	83,104

PRODUCTION, MINERAL RESOURCES, ETC. About three-quarters of the entire area of Bolivia lies east of the Andes and is almost entirely undeveloped. It has been estimated that almost 5,000,000 acres of land are under cultivation, but agriculture is in a very backward condition. Irrigation by means of artesian wells is being attempted in some sections. Potatoes, cacao, coffee, barley, rice, and rubber are the principal products cultivated, Bolivia being the second largest rubber exporting country of South America (Brazil is first). The public lands of the state have an area of about 245,000 square miles, of which 104,000 are reserved for special colonization. In 1925 there were 500,000 cattle, 1,000,000 sheep, 250,000 goats, 232,455 llamas, 55,699 alpacas, 95,683 donkeys, 92,355 pigs, 63,723 horses, and 17,169 mules. Mining is the only important industry, and includes silver, copper. tin, lead, zinc, antimony, bismuth, wolfram, gold, and borate of lime. One-quarter of the world's output of tin comes from Bolivia. For the conditions in the mining industry during 1926, see below under COMMERCE.

COMMERCE. According to the U. S. Bureau of Foreign and Domestic Commerce, Bolivia is a country that is devoted almost entirely to the production of minerals. Its high altitude, lack of rivers and irrigation, and its enormous mineral resources all contribute to this concentration of effort, and make it necessary for Bolivia to import foodstuffs in large quantities. Similarly, manufacturing industries have progressed very little, perhaps in view of the fact that the raw materials, labor, and proper manufacturing conditions are lacking, and as a consequence, textiles of all sorts, together with other manufactures, compose the larger part of Bolivian imports.

The comparatively healthy position of the mining industry during the two years 1925–27 stimulated Bolivian purchases, for, although most of the mines are foreign owned, there are small mines which are locally owned and operated. As the mining industry improves, more wages are paid within the country, and the revenues derived by the government are increased.

The United States showed a marked increase in its sales to Bolivia in 1926 when compared with 1925, according to Bolivian statistics for 1926. The total foreign trade of the country during 1926 amounted to 193,512,756 bolivianos (1 boliviano is worth $0.3893), of which exports totaled 122,681,287 bolivianos, while imports amounted to 70,831,469 bolivianos. This was a slight increase over 1925, when total Bolivian foreign trade amounted to 187,351,492 bolivianos, composed of 119,286,371 bolivianos for exports and 68,065,121 bolivianos for imports. Total imports into Bolivia increased 4.06 per cent in 1926 over those for 1925. The United States, however, increased its Bolivian sales 11.25 per cent, thus registering a gain nearly three times as great as that shown in total Bolivian imports. The principal imports in order of importance are shown in the following table.

PRINCIPAL IMPORTS INTO BOLIVIA

	1925	
Article	*Quantity Metric tons*	*Value Bolivianos*
Wheat flour	26,602	5,863,562
Cotton textiles	1,863	6,699,589
White granulated sugar	12,413	3,185,610
Mining machinery	3,290	2,648,911
Woolen textiles	195	1,978,320
Rice	4,791	1,271,015
Live animals	3,299	1,211,507

	1926	
Article	*Quantity Metric tons*	*Value Bolivianos*
Wheat flour	27,048	6,361,351
Cotton textiles	2,273	7,407,114
White granulated sugar	10,873	2,219,515
Mining machinery	2,384	2,402,324
Woolen textiles	228	1,962,423
Rice	6,249	1,471,246
Live animals	4,208	1,394,707

Many other items amounted to more than 1,000,000 bolivianos, which, in the order of their values, were woolen blankets, sacks for mining purposes, electrical equipment for generating light and power, men's hats, women's hats, etc., and brown sugar. A comparison of imports during 1925 and 1926 by countries of origin, discloses that the four principal suppliers of Bolivia are the United States, Great Britain, Germany, and Chile. The United States increased its proportion of Bolivian imports by 11.25 per cent; Great Britain, 13.7 per cent; Germany, 3.3 per cent; while imports from Belgium, which occupied fifth place during 1925, declined by 62.4 per cent during 1926. Imports from Chile dropped 6.6 per cent during the year.

Exports in 1926 showed a slight increase over the previous year in both value and volume. Tin exports decreased in volume but increased in value, owing to increased prices of tin during 1926. Lead, the second item in importance, declined in both volume and value, but this was more than compensated by important increases in the exportation of antimony, zinc, silver, and other articles, as is shown in the accompanying table:

PRINCIPAL EXPORTS FROM BOLIVIA

	1925	
Item	*Quantity Metric tons*	*Value Bolivianos*
Tin	54,330	79,618,768
Silver (including ore)	11,343	7,854,130
Lead	36,838	10,497,870
Rubber	3,393	7,261,998
Copper	14,659	4,096,910
Zinc	6,210	1,554,196
Bismuth	542	3,353,873
Antimony	3,146	864,951
Coca leaves	389	959,389
Salt hides	866	1,142,639
All other items	6,903	2,082,176
Total	138,619	119,286,370

	1926	
Item	*Quantity Metric tons*	*Value Bolivianos*
Tin	53,639	83,321,865
Silver (including ore)	11,820	8,695,065
Lead	30,911	7,524,889
Rubber	3,105	5,484,009
Copper	19,476	4,509,174
Zinc	17,561	3,682,752
Bismuth	375	2,366,571
Antimony	7,409	2,447,317
Coca leaves	438	1,092,990
Salt hides	758	1,030,389
All other items	9,080	2,176,270
Total	154,567	122,681,291

Great Britain continued to absorb by far the greatest share of the Bolivian products, although the United States took slightly more during 1926 than 1925. Tin, the principal export of Bolivia, is shipped to Great Britain because London is the world's chief metal market, smelting charges are lower than in the United States, and a large amount of British capital is invested in the industry in Bolivia. After the ore has been reduced to tin in pigs—practically all in Great Britain—the bulk of it is reshipped to the United States, which thus becomes the ultimate consumer. Of the total exports, Great Britain took 80.9 per cent during 1925 and 78.5 per cent in 1926; the United States received 8.2 per cent in 1925 and 9.5 per cent in 1926; Germany, Belgium, Argentina, Brazil, and France follow as markets, in the order given.

ORIGIN OF BOLIVIAN IMPORTS

	1925			*1926*			
		Value			*Value*		
Country of origin	*Quantity*	*Total*	*Per cent of total*	*Quantity*	*Total*	*Per cent of total*	*Net per cent of increase or decrease over 1925*
	Metric tons	*Bolivianos*		*Metric tons*	*Bolivianos*		
United States	44,846	18,338,875	26.9	49,482	20,401,605	28.8	11.3
Great Britain	18,686	13,530,811	19.9	27,661	15,386,453	21.7	13.7
Chile	49,772	8,387,569	12.3	42,007	7,834,537	11.1	− 6.6
Germany	9,645	7,864,999	11.6	10,198	8,124,407	11.5	3.3
Belgium	10,168	3,660,932	5.4	5,995	1,376,092	1.9	− 62.4
Argentina	13,616	3,582,880	5.2	7,558	3,422,642	4.8	− 4.5
Italy	2,163	2,987,085	4.4	2,390	3,833,212	5.4	28.3
Peru	9,491	2,528,061	3.7	17,210	3,266,177	4.6	29.2
France	1,159	2,374,307	3 5	1,137	2,506,634	3.5	5.6
Brazil	1,771	994,830	1.5	1,337	962,544	1.3	− 3.3
Spain	406	959,508	1.4	443	808,033	1 2	− 15.8
Netherlands	3,591	897,888	1.3	5,606	858,885	1.2	− 4.3
All other	3,952	1,957,376	2.9	4,124	2,050,308	2 9	+ 4.7
Total	168,763	68,065,121	100.0	175,148	70,831,469	100 0	4.1

FINANCE. For the fiscal year 1925–26 the budget estimates balanced at 44,482,183 bolivianos. The principal items of expenditure in the budget were Public debt, 19,375,880 bolivianos; war ministry, 8,492,950 bolivianos; education, 3,892,246; interior, 3,466,082; communications, 2,171,844; justice, 2,006,361. As announced in the preceding YEAR BOOK, a financial commission of six members under the direction of Professor Kemmerer of Princeton University, studied the financial situation in Bolivia with the idea of making suggestions for its improvement to the government. The magazine, *Bolivia*, for September, 1927, gave a résumé of the projects studied and submitted to the government by the mission under the following 14 headings: Reorganization of the Banco de la Nación Boliviana; an organic law for the national budgets; reorganization of the fiscal accounting, and the intervention of the government in the fiscalization of public expenses, and proper check by means of an office to be termed Contraloria; reorganization of the Bolivian Treasury Office; a general law for banks; a law for taxes on certain classes of income; a law for taxation on fixed property; a money law; a report on mining taxes; a report on the public credit of Bolivia, a report on the financing of the Cochabamba-Santa Cruz Railway; a report on the stamp law; an organic law for the customs house administration; and a reform law for railway tariffs. The public debt of Bolivia on June 30, 1927, amounted to 172,544,762 bolivianos, of which external debt was represented by 132,176,502 bolivianos, internal debt by 22,065,682 bolivianos, and floating debt by 18,302,578 bolivianos.

COMMUNICATIONS. The railways of Bolivia open to traffic comprise about 1100 miles. President Siles announced during the year that the La Paz-Yungas railway, the initial construction of which was begun in 1915, would be completed at once. The Yungas is a subtropical valley which begins 60 miles north of La Paz and supplies that city with the greater part of its food supply. The President had appointed a commission to go into the entire question of the most feasible and best route that should be taken. Since the beginning of the construction of the railway there has been a discussion as to whether or not it should be built to Coroico, one of the capitals of the Yungas, or in the direction of the River El Beni. Thus far the railway has been extended 130 miles; if completed to the head of steam navigation on the River El Beni, as originally planned, about 88 miles of additional construction would be required.

The Pan American *Bulletin* reported in April that the governments of Peru and Bolivia had entered into an agreement to connect the Peruvian Railroad ending at Puno, on Lake Titicaca, with the Bolivian Railroad starting at Guaqui, on the same lake, thus avoiding the boat trip now necessary between the two terminals. The new line was to follow the shores of the lake, shortening the time of transit and contributing to trade exchange between the two countries.

The *Railway Age* reported in July that the Bolivian Railway was taken possession of by the Bolivian Government in a decree issued by the President and cabinet under date of June 29. Seizure of the railroad was actuated, it was believed in Bolivia, by the suspicion which is said to have arisen that creditors who had advanced large sums to the road intended to throw it into the hands of receivers. The chief contract of the railroad with the government expired in December. The President and cabinet, citing laws which were said to authorize such action, asserted in the decree that the step was taken to protect the national welfare and the present holdings of the government in the railroad, which were estimated in Bolivia to be one-third of the whole system. The entire system of the Bolivian Railway, comprising 570 miles of road, rolling stock, shops and other equipment, became government property.

GOVERNMENT. The President, who is elected by direct popular vote and is ineligible for reelection, is the head of the executive department, and is aided by a cabinet of six members, each in charge of a separate department. Legislative power is vested in a congress of two chambers, the senate of 16 members elected for six years, and the chamber of deputies of 70 members elected for four years. One-third of the senate and one-half of the chamber retire every two years. President in 1927, Dr. Hernando Siles, assumed office Jan. 10, 1926, for the period 1926–1930.

History. Both the United States and Bolivia were very much grieved over the death of Ignacio Calderón, (q.v.) the Bolivian ambassador to the United States and a firm and powerful friend of the Pan American movement. Bolivia was the scene of considerable unrest and disorder throughout the year. In early May the government was compelled to declare martial law because of serious riots in the capital because the professors of the National University had not been paid their salaries for several months and talked strike, in which action, of course, they were heartily endorsed by the student body. The government did not finally get control of the situation until a few had been killed and many wounded.

During August and September a more serious affair confronted the government in the form of a revolt of 80,000 Indians. The struggle that ensued was easily put down by the Bolivian soldiers inasmuch as the Indians fought with only the most primitive weapons, the sling, bows and arrows and clubs. The revolt centred around the Departments of Potosi and Cochabamba, where the Indians greatly outnumbered the whites. Various causes were given for the uprising; the chief among them were dissatisfaction with the Bolivian government and communistic propaganda chiefly from outside the country. The latter point of view was the one taken by the government which exhibited alleged documents purporting to come from Russia and instigating the communists to enlist the aid of the Indians against the government. As a result of this attitude the government took a firm hand against all known radicals and placed several of them in jail.

To the outsider the plight of the Indians was a pitiful one. Although they constitute two-thirds of the population they have absolutely no say in the government, are treated very harshly, paid little or nothing for their labor, and are denied the ordinary advantages of an enlightened government, such as education, decent living conditions, and a fair day's wage for a fair day's work. If the government's charge of communistic propaganda were true, it certainly can be accused of planting a fertile field for its incubation and growth.

For a discussion of Bolivia's interest in the Tacna-Arica dispute consult the article on Arbitration, International.

BOLL WEEVIL. See Cotton; Entomology, Economic.

BOLL WORM. See Entomology, Economic.

BOLTWOOD, Bertram Borden. American chemist, died by his own hand at Hancock Point, Me., August 15, during a period of despondency. He was born at Amherst, Mass., July 27, 1870, and after graduating from Sheffield Scientific School at Yale in 1892 continued there as a post-graduate student, taking the degree of Ph.D in 1897. He carried on post-graduate studies at Munich, Leipzig and Yale, and held the John Harling fellowship of the University of Manchester, 1909–10. While engaged in research at Yale and post-graduate work he was also active as a teacher, serving as an assistant in analytical chemistry, 1894–96; instructor, 1896–1900; assistant professor of physics, 1906–10; and professor of radio-chemistry, 1910, a chair he held at the time of his death. He was acting professor of chemistry and director of the Kent chemical laboratory at Yale, 1918–22. His work in radio-chemistry included the discovery of the element ionium in the radio-active group. For his work in radio-chemistry he was chosen a member of the National Academy of Sciences, and he was a frequent contributor to chemical journals. He translated: *Quantitative Analysis by Electrolysis* (A. Classen) (1898); and *Physical Chemistry for Beginners* (C. H. Van Deventer) (1899).

BONBRIGHT, William Prescott. American banker, died at New York, N. Y., November 10 He was born at Philadelphia, Pa., Feb. 12, 1859, and after studying at private schools and under private tutors took a course in economics at the Wharton School of Finance, University of Pennsylvania, before entering business with Hood, Bonbright & Co, bankers, in 1876. He was admitted to partnership in 1882, and removed to Colorado Springs, Colo., 1890, where three years later he established a banking business. Mr. Bonbright's activities extended to Europe, and during the World War his assistance to the French Government led to his being made a Chevalier of the Legion of Honor in 1919. In 1920 he retired from the presidency of the banking firm of William P. Bonbright & Company. He was also first vice president of the Société Financière pour Entreprises Électriques.

BOND, The Rt. Hon. Sir Robert. Former Premier of Newfoundland, died at Whitebourne, N. F., March 17. He was born at St. John's, Newfoundland, Feb. 25, 1857, and was educated at Queen's College, Taunton, England, and at Edinburgh University, where he took honors in law. Even before being called to the bar he entered political life, and in 1882 was elected to the Newfoundland legislature. Two years later he became speaker of the House of Assembly, and from that time his entire life was devoted to public affairs in Newfoundland. His promotions were rapid, and he figured as a Liberal in several ministries. In 1889 he was executive councillor, with the portfolio of colonial secretary, in the Liberal ministry, a position he held until 1897. In 1900 he became premier as well as colonial secretary, continuing in this position until 1909, when the Liberal ministry was forced out by the newly formed People's Party, under Sir Edward Morris. He remained in political life as leader of the opposition until 1914, when, in protest against what he considered the bad faith and sectional aims of his party, he resigned the leadership as well as his seat in the House of Assembly. Sir Robert throughout his public life was active in behalf of Newfoundland and in imperial affairs, being appointed a delegate to the British government on the French treaties question in 1890. In the same year he was appointed by the British government to assist the British ambassador at Washington in negotiating a reciprocity treaty with the United States which later became known as the Bond-Blaine convention of 1890. It was rejected by the British government. In 1892 he was one of the delegates appointed to confer on the Newfoundland fisheries question, and in 1895 was chairman of the deputation sent by the Newfoundland government to the Ottawa conference. In 1901 he was special delegate to the conference on French treaties, in London, and he received the freedom of the City of Edinburgh in the following year. In 1902, also, he was authorized by the British government to reopen negotiations with the United States for reciprocal trade between that country and Newfoundland, his efforts resulting in the Hay-Bond reciprocity treaty. This was signed at Washington Nov. 8, 1902, but failed of ratification in the United States Senate. In 1901 he was knighted, and in 1902 he was made a member of the Imperial Privy Council. He assisted in drafting regulations for carrying out the Anglo-French convention in 1904, and in 1906 procured the passage of a resolution in favor of old-age pensions. He opposed the union of Newfoundland with Canada, and favored a direct ocean route between Newfoundland and Ireland. He received the freedom of the Cities of London, Bristol and Manchester in 1907, and the honorary degree of LL.D. from the University of Edinburgh.

BONZANO, bonză′no, JOHN, CARDINAL. Roman Catholic churchman, died at Rome, November 26. He was born at Casteletto, Italy, in 1867, and was ordained in Rome in 1890. Later he was made vicar general of the diocese of Vigevano and rector of the Pontifical Urban College at Rome. On Feb. 1, 1912, he was appointed apostolic delegate to the United States, and on March 3 of the same year was consecrated Archbishop of Mytilene. He had a wide acquaintance not only in his own communion, but throughout the United States. In 1922 he was elevated to the cardinalate, and in 1926 he was sent by Pope Pius XI to the 28th Eucharistic Congress, in Chicago, as the legate and special representative of His Holiness. There were in attendance at the Congress 12 cardinals, 57 archbishops, 261 bishops, 3 apostolic delegates and other church dignitaries, among whom Cardinal Bonzano was an outstanding figure in virtue of his office as legate of Pope Pius. (For details of the Congress, see article ROMAN CATHOLIC CHURCH, in the YEAR BOOK for 1926.)

BOOTS AND SHOES. There was reported a substantial gain in activity in the shoe trade in 1927, the output for the United States being the largest since 1923, and the general attitude which prevailed at the end of the year was one of optimism and satisfaction with business conditions. Factories in Columbus (Ohio), St. Louis, and other shoe centres were running with full schedules and business showed no slackening, many of the concerns being unable to keep up with orders. During September, 90 per cent of the workers in Massachusetts boot and shoe factories were employed on full-time schedule and expansion was carried on, which resulted in increased production, in Lynn, Haverhill and Brockton, one firm in the Old Colony Section of Massachusetts reporting a gain of 22 per cent up to December 1 over the same period in 1926. Factory conditions in Massachusetts, however, at the end of the year were marked by some labor dissatisfactions which were retarding the volume of business.

The output of 343,605,905 pairs of shoes from the 1400 shoe-manufacturing plants in the United States for 1927 showed an increase of 5.9 per cent over the output for 1926, when 324,513,695 were manufactured. Of the total production, 116,258,866 pairs, or 33.8 per cent, were for women, and 95,328,098, or 27.7 per cent, for men; the production of boys' and youths' shoes totaled 24,229,296 pairs; of misses' and childrens', 39,649,961 pairs; and all others, 68,139,684 pairs, included infants' shoes, 24,541,551 pairs; athletic and sporting shoes (leather), 2,477,518 pairs; shoes with canvas, satin and other fabric uppers, 3,301,433 pairs; all-leather slippers for house wear, 5,085,294 pairs; part-leather slippers for house wear, 24,072,828 pairs; and footwear not elsewhere classified, 8,661,060 pairs. Rather large quantities of men's heavy shoes, reported under "men's" shoes in 1927 were reported by manufacturers in previous years as "athletic" shoes, which accounts to some extent for variations in the 1927 figures for men's and athletic shoes, in making comparisons with previous years. There was a marked decrease in the production of shoes with canvas, satin and other fabric uppers in 1927, as compared with the previous years.

According to the report of the U. S. Department of Commerce, Massachusetts ranked first in the production of shoes during 1927, when a total of 78,182,264 pairs were manufactured, including 20,840,782 pairs of men's shoes and 34,226,555 pairs of women's shoes, or 21.7 and 29 per cent, respectively, of the national output, while New York State was the nearest competitor, with 75,687,268 pairs.

There was an increase in the imports of boots and shoes in 1927, the total for the year being 3,003,839 pairs, including 1,477,435 pairs of leather boots and shoes (free); 460,073 pairs of leather slippers (free), and 1,066,331 pairs, dutiable footwear. Compared with 1926 the quantity of boots and shoes imported increased 38.1 per cent; leather slippers, 21.9 per cent; and dutiable footwear 17.4 per cent.

The industry devoted considerable attention during the year to corrective footwear which resulted in the introduction of departments devoted to corrective problems in numerous retail establishments to take care of the trade which required this type of service. Juvenile stores made progress in their policy of developing fewer lines and more sizes, in an effort to cope with the problem of merchandizing juvenile goods which had been a serious matter in the past. With the marked advance in prices of leather during the year the shoe industry was confronted with the necessity of preparing the public for advanced shoe prices during 1928.

The work of the Style Conference which met November 1 in New York was considered an important and advantageous factor due to its findings, which were at the service of the industry, and its coöperation with allied wearing apparel industries, and various branches of the shoe industry. The various conventions which met during the late autumn stressed the importance of developing a shoe consciousness among men and reported an increased demand for men's shoes, and a strong demand for light-colored shoes for women for 1928. The outstanding style development of the late autumn and winter season was in the production of boots for winter wear, which, in spite of hesitation on the part of manufacturers, gained a strong foothold in the trade. Considerable activity was also reported in the introduction of stylist departments in the manufacturing and retailing branches of the shoe industry.

BOR′NEO. An island in the Malay Archipelago, next to Australia, Greenland, and New Guinea the largest in the world. See British North Borneo, Brunei, Sarawak, and Dutch East Indies.

BOS′NIA AND HERZEGOVINA, hĕr′tsā-gō-vēna. Formerly provinces in the Turkish Empire; now provinces of the newly established state of Jugo-Slavia (q.v.). In 1908 control over them was acquired by the Austro-Hungarian Empire. In 1918 after the collapse of this empire they were turned over to Jugo-Slavia. Area, 19,768 square miles; population, according to the census of Jan. 31, 1921, 1,889,929.

BOSTON MUSEUM OF ART. See Art Museums.

BOSTON UNIVERSITY. A non-sectarian institution of higher education at Boston, Mass.; founded in 1869. The enrollment for the autumn term of 1927 was 9611, of whom 4805 were men and 4806 were women, distributed as follows: college of liberal arts, 897; college and extension courses, 721; college of business administration, 3559; college of practical arts and letters, 973; school of theology, 242; school of law, 560; school of medicine, 206; school of education, 1338; art department, 91; school of religious education and social service, 504; graduate school, 520; educational extension courses, 586. The autumn enrollment in extra-mural courses was 313. The summer session enrollment was 1206. Total registration for the first half of the academic year was 11,403. The faculty numbered 495. The libraries contained 98,148 volumes and 17,400 pamphlets. Productive funds of the university, exclusive of $302,596 subject to annuities, amounted to $3,020,664, and the income from productive endowment was $135,404. The president of the university was Daniel L. Marsh, LL.D., Litt.D.

BOSWORTH, Edward Increase. American theologian, died at Oberlin, Ohio, July 1. He was born at Dundee, Ill., Jan. 10, 1861, and after studying at Oberlin College graduated from Yale in 1883. He returned to Oberlin to take the degree of B.D. in 1886, in which year he was ordained in the Congregational ministry and became pastor of a church at Mt. Vernon, Ohio, for a year, returning to Oberlin in 1887 as professor of the English Bible. In 1890 he studied at the University of Leipzig, and he spent the winter of 1891–92 at Athens, Greece. On his return to Oberlin in 1892 he became professor of New Testament language and literature, a position he held until his death. He was also dean from 1903 to 1921, and from 1921 to 1923 dean of Oberlin Graduate School of Theology. In 1918–19 he was acting president of Oberlin College. He lectured in Japan in 1907 and in Turkey in 1911. He was a member of many learned societies, and his writings include: *Studies in the Acts and Epistles* (1898); *Studies in the Teaching of Jesus and His Apostles* (1901); *Studies in the Life of Jesus Christ* (1904); *New Studies in Acts* (1908); *Christ in Everyday Life* (1910); *Thirty Studies About Jesus* (1917); *Commentary on Romans* (1919); *What It Means to Be a Christian* (1922); and *Life and Teaching of Jesus According to the First Three Gospels* (1924).

BOTANY. The eighty-fourth annual meeting of the American Association for the Advancement of Science, with about 25 affiliated societies, met at Nashville, Tenn., December 26 to 30, 1927. The British Association for the Advancement of Science met at Leeds, England, August 31 to September 7; the Indian Science Congress at Lahore, India, January 3 to 8; the South African Association for the Advancement of Science at Salisbury, Southern Rhodesia, June 29 to July 4; and the French Association at Lyons, France, July 24 to August 1. At all these scientific meetings papers were presented that are of interest to botanists. The Fifth International Congress of Genetics was held in Berlin, Germany, September 11 to 18 with a large attendance. At the First International Congress of Soil Science, held at Washington, D. C., June 13 to 22, a number of papers were read that were of interest to ecologists and biologists in general.

New Journals. Among the journals that made their initial appearance during the year which may be found of interest by botanical workers are: *Protoplasma*, an international journal of the physical chemistry of protoplasm; *Deutsche Landwirthschaftliche Rundschau*, a monthly abstract journal of technical agriculture; and *International Bulletin of Plant Protection* issued by the International Institute of Agriculture.

The botanical contributions that appeared during the year were very numerous and only a very limited number can be noted.

Physiological Studies. Baly and associates have recently given further accounts of their investigations on photosynthesis (*Nature*, November 19, 1927). It was found that when an aqueous solution of carbonic acid in quartz tubes was exposed to ultra-violet light a photo-stationary state was established and an organic compound was produced that was considered to be a complex aldehyde. The reaction apparently took place on the surface of the tubes. Photosynthesis of carbohydrates from carbonic acid with the liberation of oxygen also occurred under the influence of visible light in the presence of a catalyst. A marked similarity is claimed to exist between photosynthesis in plants and that in vitrio. Ordinary formaldehyde does not occur in either reaction. In plants the limiting surface is believed to be the chloroplasts, and their orientation with respect to the direction of light rays is one of the factors in controlling photosynthesis.

As a contribution to the study of photoperiodism of plants (Year Book, 1926, p. 104), Nightingale found carbohydrates accumulate in short-day plants probably through their limited utilization of various forms of nitrogen. When carbohydrates are depleted amino acid and other forms of nitrogen are produced at the expense of protein. Plants exposed to short periods of daily illumination were found to gain more total nitrogen than those subjected to long photoperiodism. Gilbert claims that there was an increase in carbohydrates in plants grown at high temperatures with a short-day illumination and at low temperatures under a long period of exposure to light. Popp reports that when plants were subjected to different portions of the spectrum he found that on the whole the ultra-violet rays are not indispensable, but the blue-violet portion of the spectrum is essential for normal, vigorous growth. Dastur claims that there is a close correlation between the photosynthetic activity of leaves and their water content. Fudge found that the transpiring power of maize plants could be taken as an index to the total dry weight produced. Clum reports that leaves are nearly always warmer than the surrounding air, differences of from 5 to 10° C. being observed in some cases, and contrary to common belief the effect of transpiration on cooling leaves is so insignificant as to be unable to protect them from the burning effect of bright sunlight.

Ivanov has propounded what he claims is a fundamental law relating to the occurrence of specific substances in plants (*Izv. Akad. Nauk.*, 1926). He claims that every species of plant shares in the chemical attributes of those with which it is closely related. As the relation becomes more distant other substances appear that have rather simple chemical relations to the original substances. This is said to reveal an evolutionary process that may form a basis for the grouping of plants, the possibility of crossing them, and as a guide for attempts for their acclimatization. Reychler claims to have produced hereditary changes in plants by subjecting them to conditions other than those found in nature, and he believes that mutations occur in this manner and they may be artificially produced in part at least (*La Mutation*, 1926). Goodspeed and Olson have produced many new forms of tobacco by exposing the reproductive cells to X-rays, and the visible modifications are believed to be capable of hereditary transmission (*Science*, November 11, 1927).

Satina and Blakeslee made a study of the Manoilov reaction and other tests for the determination of sex in plants (*Natl. Acad. Sci. Proc.*, 1926, p. 191). These tests are based on the reaction to certain dyes, and in the molds what has been called the + sex was found to correspond to the female and the — strain to the male. In testing dioecious plants the sex organs responded to the expected sex reactions. Perkins also investigated this reaction, and he claims it is due to certain oxidizing and reducing properties, although they are undoubtedly closely associated with sex conditions (*Nature*, November 5, 1927).

That small quantities of various elements are necessary for the normal growth of plants has been shown since Mazé in 1914 called attention to the fact that aluminum, sulphur, and magnesium were essential for the growth of maize (YEAR BOOK, 1915, p. 94). Brenchley and Warrington found that boron was required by some plants (*Ann. Bot.*, 1927, p. 167), and this has been recently confirmed by Sommers for about 16 species of plants. Zinc was also found a limiting factor for the growth of a number of species of plants, normal growth and reproduction taking place only when zinc was added to the culture solutions. Simmonds summarized some of the recent work on the requirements of plants of small quantities of various elements, and he calls attention to the need of exercising extreme care in experiments that these elements from unknown sources shall be excluded (*Science*, 1927, p. 482). McHargue has shown the need for manganese, etc., by plants (YEAR BOOK, 1922, p. 92), and McLean has found that manganese injected into leaves through their stomata acts similarly to applications to soil in correcting chlorosis of plants.

Many attempts have been made, without much success, to determine the best combination of fertilizer elements for the growth of plants in soils and water cultures. Hibbard has come to the conclusion, after a prolonged study of the growth of cereals, that it is impossible to produce a physiological balance in the soil that is the best for growth and yield. It is suggested that through the long period of growth under domestication the plants have become accustomed to wide ranges in salt solutions (*Pl. Physiol.*, 1927, p. 1). Liu from extensive experiments with tobacco was unable to determine a combination of fertilizer elements that was best for growth to maturity.

After the discovery that ethylene and other gases would hasten the coloring of citrous fruits, investigators have given attention to their commercial use and the changes brought about, especially in those products used as food. Chace and Church have reported on the use of ethylene gas in ripening citrous fruits, avocados, bananas, dates, persimmons, and tomatoes. Satisfactory results were obtained with most fruits, and no deleterious changes were found in the edible portions of the fruits except with avocados. With these there was an undesirable darkening of the pulp. The astringency of the persimmon was destroyed. Green tomatoes were not uniformly colored by the treatment (*Indus. and Engin. Chem.*, 1927, p. 1135). Harvey, experimenting with the same gas, found that the respiration of bananas was greatly accelerated, ripening was hastened, and the treated fruit had from 20 to 25 per cent more sugar and correspondingly less starch than untreated fruit (*Pl. Physiol.*, 1927, p. 357). Mack reports that ethylene gas accelerated the blanching of celery through the stimulation of the enzymes which are normally concerned in the breaking-down of various compounds in the plant. Denny found that exposing citrons fruit to ethylene gas (1 part to 10,000) greatly increased the respiration of the fruit, the amount of carbon dioxide given off being doubled in 48 hours.

MISCELLANEOUS STUDIES. MacDougal and Smith report having found ray parenchyma cells with clearly defined protoplasts and apparently normal nuclei 70 layers deep in the heartwood of the California redwood tree, indicating a life of nearly a century. Similar long-lived cells were found in the giant cactus and in the melon cactus. In the giant cactus the cells continue to enlarge for a century. In the melon cactus they continue to grow for 10 years or more and remain functional for a period of 100 years or more. In the redwood the cells attain full size in a few days, but they remain alive for a century or more (*Science*, 1927, p. 456).

It has been observed frequently that yellow leaves in the autumn contain less nitrogen than green leaves. Combes has investigated this phenomenon in leaves of oak, beech, and chestnut and found that in leaves that turned yellow on the trees, as in autumn coloring, there was a marked lowering of the nitrogen content as compared with leaves that became yellow after removal from the tree. The nitrogen removed from the leaves was found to accumulate first in the branches and later it was translocated to the roots (*Rev. Gén. Bot.*, 1926, p. 430).

Comments are frequently heard on the failure of potato plants to develop true seed in many places. Stow has made a cytological study of this question, and he found that temperature is the principal factor responsible for sterility, viable pollen not being produced at temperatures of 78° F. or more. At low temperatures, 60 to 68°, chromosome reduction proceeds normally, and viable pollen is produced for fertilization of the ovules (*Proc. Imp. Acad. Japan*, 1926, p. 426).

Differences in the degree of winter hardiness of plants has been attributed to variations in the pentosan contents of the plants. Doyle and Clinch, from a study of the resistance of coniferous trees to winter injury, came to the conclusion that there is no relation between the pentosan content of conifers and their tolerance of cold (*Roy. Dublin Soc. Sci. Proc.*, 1926, p. 219).

On account of the increasing use of arsenicals for the control of insect pests, the effect of their repeated application on subsequent plant growth where the arsenic was allowed to accumulate in the soil was investigated by Morris and Swingle. Plants were found to vary widely in their tolerance of arsenic poisoning. Cereals and grasses were able to withstand considerable accumulations of arsenic in the soil, but beans and cucumbers were severely injured by relatively small amounts. Tomatoes were adversely affected by 10 parts per million of arsenic trioxide in the soil (*Jour. Agr. Res.*, 1927, p. 59).

Plant Diseases. Plant diseases continue to be an important factor in crop production in all countries. *The Plant Disease Reporter*, issued by the U. S. Department of Agriculture, claims the loss to the wheat crop of the United States for the years 1918 to 1925, inclusive, amounted to 10.82 per cent. In 1927 the wheat rust situation throughout the country was favorable on the whole. Winter wheat was not severely infected but the spring wheat areas of Minnesota, North Dakota, and South Dakota suffered losses estimated at 30.35, 6.67, and 5.8 per cent, respectively. In Illinois losses from stinking smut in 1927 are estimated at $2,298,000, one out of every 5 bu. of wheat produced in the State having been docked at the elevator an average of 8 cents on account of the smut. Flag smut is said to have caused a loss of 2,000,000 bu. in the Australian wheat crop of 1926. Pesola reports a severe infestation of wheat in Finland by yellow rust (*Puccinia glumarum*) with reduced yields of from 20 to 30 per cent in 1927.

A number of new plant diseases were described during the year and others were reported to have extended their range. The chestnut blight that has destroyed nearly all the original stand of chestnut trees in the eastern part of the United States was found in a nursery in Iowa during the year. The blister rust of pear, hitherto reported on pear trees in Delaware only, was discovered in Iowa on both pear trees and mountain ash. Peach yellows was definitely reported in Georgia. Take-all of wheat was found in fields of eastern Maryland. The European larch canker (*Dasyscypha calycina*) was recently reported in Massachusetts where it was attacking introduced and native species of larch, Douglas fir, pitch, and Scotch pines. The evidence seems quite conclusive that the disease was introduced on larch trees imported from Scotland in 1904 and 1907. A new disease of wheat, characterized by brownish-black areas on the stems just below the heads as the grain is approaching maturity, was reported in England by Biffen. No organism was found in the diseased material. A brown rot of oranges and lemons caused by *Phytophthora hibernalis* is described by Carne as occurring in Australia and elsewhere. Hopkins claims to have isolated two species of bacteria from cotton bolls in Trinidad. One is believed to be associated with the fungus usually considered responsible for cotton anthracnose. Stahl has questioned the identity of the mosaic disease of sugar cane and a similar disease of corn. It is claimed in Cuba that the diseases are quite distinct. Recent work by Valleau and others has shown a pythium-like organism in connection with corn root rot, and the seed-borne organisms usually considered to cause root rots are believed to be secondary invading organisms.

The campaign for the control of the white pine blister rust by the eradication of wild and cultivated currants and gooseberries near stands of white pine has been continued. Since 1922, under coöperative relations established between the U. S. Department of Agriculture and various State and other agencies in the eastern white pine area, more than 53,000,000 ribes bushes have been destroyed and the menace of the blister rust removed from over 5,000,000 acres of land. The work of destroying the alternate host plant of the white pine blister rust is progressing in the eastern white pine belt at the rate of about 800,000 acres a year. In the Pacific Northwest the blister rust has slowly spread, and it has reached the edge of the western white pine belt in Idaho. Infected currant bushes have been found in northwestern Oregon, northeastern Washington, and northern Idaho. In order to check its spread the cultivated black currant, which is one of the most important alternate hosts of the fungus, has been nearly eradicated in Montana, Idaho, Washington, Oregon, and most of California. The destruction of susceptible wild species is being actively carried on. Studies in British Columbia have shown that the rust can spread further from infected trees than formerly thought probable, infected currant bushes having been found more than 200 miles from any known white pine tree.

One of the most active fields of phytopathology during the year 1927 was the study of the so-called virus or mosaic diseases of plants. Jaczewski has enumerated 11 types of degeneration, or virus, diseases of potatoes in Russia, nearly all of which are said to be prevalent in regions where foreign varieties have been introduced for cultivation. Two new virus diseases of potatoes were reported, one in England that is characterized by tall, weedy growth of the vine accompanied by the production of few small tubers, and the other in Utah. With this disease aërial tubers are produced to the almost complete exclusion of subterranean ones. Whitehead claims leaf roll of potatoes can be controlled in Wales by roguing out the diseased plants and early digging of tubers intended for planting. The method of roguing is recommended by many investigators as about the only practicable method of controlling mosaic diseases in general. Temperature, water supply, etc., have been found to cause a masking of symptoms of various virus diseases, the particular trouble reappearing under changed conditions of growth. Atanasoff found all varieties of potatoes tested ere subject to stipple-streak, a virus disease, nd one variety transmitted the disease although ot showing any of the symptoms of infection tself.

Johnson, who has studied the virus diseases f tobacco quite extensively, reports that there re at least 11 different viruses of tobacco and elated plants and that two or more can be present in a plant. In most cases they are fairly table, but in some instances it was possible to ttenuate or increase their virulence. Blodgett ransmitted the virus of mosaic tobacco to the otato and when transferred back to tobacco ombined symptoms were produced of ordinary obacco mosaic and those due to the virus caried by sound potatoes. Moore reports a mosaic f tobacco in South Africa that is associated with sunburning of the leaves.

One of the interesting contributions to our knowledge of virus diseases was the discovery hat the disease of sugar beets known as curly top was connected with diseases of several other important crops. Carsner has described a mosaic disease of beans that was carried from diseased sugar beets to beans by the leaf hopper, *Eutettix tenella.* This has been confirmed by other investigators, and by what appears to be conclusive evidence it is shown that the western yellow blight of tomatoes is due to the same cause. Severin found 25 species, which include 46 horticultural varieties, representing 16 genera of plants subject to natural infection with curly top virus in California.

Considerable study was reported on the nature of the viruses responsible for these diseases and the effect of physical factors on them. Johnson found by heating inoculated plants the usual symptoms of disease were masked. McKinney claims the viruses can be diluted by heating and the addition of water. Kraybill and Eckerson studied the virus of tomato mosaic and found the infective principle did not pass through special fritted glass filters when colloidal material was present but did when the colloids were removed by preliminary filtering. Vinson claims to have precipitated the virus of tobacco mosaic, the precipitate being infectious when dissolved in distilled water. Goldstein reports having found in the tissues of dahlia plants affected with mosaic intracellular bodies similar to those described by others as occurring in mosaic plants. Jones described under the name *Plasmodiophora tabaci* a mycetozoan found in tobacco plants which had mosaic symptoms.

Plant breeders for a time were quite sanguine that by applying principles of genetics they would be able to produce varieties of economic plants that would be immune to specific diseases, and considerable progress was made along this line. Recently this work was complicated by the discovery that there are physiologic forms of many species of fungi that do not behave alike, and plants bred to resist a local strain of a fungus may prove very susceptible when subjected to one from another locality. There are known to be about 40 physiologic forms of wheat stem rust, 2 or 3 of wheat smut, 5 of crown rust of oats, 5 of rye ergot, 37 of *Helminthosporium sativum*, the cause of foot rots of cereals, etc. With the knowledge of this variation in the fungi, plant breeders have resumed their investigations, but thus far they have not reported any variety or strain of plant that is resistant to all the known forms of fungi for which it is a host.

NECROLOGY. Among botanists whose deaths were reported during the year were: Dr. Bruce Fink (q.v.), professor of botany of Miami University and well known as a student of lichens, July 10, 1927; Dr. Benjamin Daydon Jackson, internationally known on account of his connection with Index Kewensis, October 12; Dr. A. A. Lawson, University of Sydney, New South Wales, March 26; Dr. F. C. Newcomb, formerly head of the botany department of the University of Michigan, October 1; Prof. Ludwig Radlkofer, director of the botanic museum, Munich, Germany, February 16; Dr. C. S. Sargent (q.v.), forest botanist and director of Arnold Arboretum, Jamaica Plain, Boston, Mass., March 22; Dr. E. F. Smith, eminent for his work on bacterial diseases of plants, April 6; George B. Sudworth, dendrologist of the U. S. Forest Service, May 10; Victor Vermorel, viticulturist and well known for his inventions of spraying apparatus, October 16; and Dr. W. P. Wilson (q.v.), formerly head of the botanical department of the University of Pennsylvania, May 12.

BOURCHIER, *bo͝o'chĭ-ẽr, Fr. pron. boo'-shyā,* ARTHUR. British actor-manager, died at Johannesburg, South Africa, September 14. He was born at Speen, Berkshire, England, June 22, 1864, and was educated at Eton College and Christ Church, Oxford. In his undergraduate days he obtained official permission for and later the coöperation of the late Professor Jowett, then vice chancellor, in the founding of the Oxford University Dramatic Society and the building of a theatre at Oxford where he played Shakespearean and other parts. He was a member of the Old Stagers and the Windsor Strollers, and made his first professional appearance with Mrs. Langtry at the Theatre Royal, Wolverhampton, as Jaques in *As You Like It,* September, 1889. Later he played with Charles Wyndham at the Criterion, where they produced a notable series of plays, and then joined Augustin Daly's company in the United States, playing with Ada Rehan and creating the part of Robin Hood in Tennyson's *Foresters.* He became a manager in 1895, and produced many successful plays, of which *Treasure Island,* in which he played Long John Silver, *Tilly of Bloomsbury,* and Shakespearean plays, were notable. He was interested in the Garrick Theatre, and was a lessee of the Strand Theatre in 1919, creating here also a number of notable rôles. His publications, which included a number of adaptations from foreign plays, were as follows: (Adapter) *Femmes Qui Pleurent; Jean-Marie; Der Rabenvater; Monsieur le Directeur* (*The Chili Widow*); *Mr. Richards; The Cricket on the Hearth; La Robe Rouge* (*The Arm of the Law*); *Down Our Alley* (*Crainquebille*); and *The Duel.*

BOWDOIN COLLEGE. An institution of higher education at Brunswick, Maine; founded in 1794. The fall session of 1927 had an enrollment of 554, including: seniors, 94; juniors, 124; sophomores, 159; freshmen, 173; specials, 4. There were 46 members on the faculty, including 8 members appointed after June, 1927. The amount of the productive funds was $4,450,000, a gift of $50,000 being made to the endowment fund during the year. A swimming pool costing $300,000, and a Union building costing $175,000 were completed, while a chapel organ was installed at a cost of $25,000. The library contained 145,000 bound volumes and many thousand unbound pamphlets. President, Kenneth Charles Morton Sills, LL.D.

BOWEN, HERBERT WOLCOTT. American diplomat and writer, died at Woodstock, Conn., May 29. He was born at Brooklyn, N. Y., Feb. 29, 1856, and after studying at the Brooklyn Polytechnic Institute and in Europe became a member of the Class of 1878 at Yale. He graduated in law at Columbia University, LL.B., *cum laude,* in 1881, and was admitted to the New York bar, where he practiced 1884–90. In the latter year he was made consul at Barcelona, Spain, serving in that capacity until 1895, when he was promoted to consul general, continuing until 1899. He was present in Spain at the time of the outbreak of the Spanish-American War. In 1899 he was sent to Persia as minister and consul general at Teheran, and in 1901 was minister to Venezuela, serving until 1905. During his service in Venezuela he became involved in a difference with the Venezuelan government, due to a Venezuelan war ship, flying an American flag, firing upon Bolivar. This resulted in an apology from the Venezuelan government and a salute to the American flag from the Venezuelan vessel. Later he prevented the Government of Venezuela imprisoning German and British subjects. He served as consul for the United States and Venezuela at the Hague Court in the Venezuelan case in 1903. In 1905 he retired from the American diplomatic service, being recalled by President Roosevelt after a disagreement between the minister and Francis B. Loomis, assistant secretary of state. Mr. Bowen was district chairman of the Connecticut State Council of Defense in 1917. In 1903 he received from Yale the honorary degree of M.A. He was the author of: *Verses* (1884); *Losing Ground* (1889); *In Divers Tones* (1890); *De Genere Humano* (1893); and *International Law* (1895).

BOWLES, REAR ADMIRAL FRANCIS TIFFANY, U. S. N. American naval constructor, died at Barnstable, Mass., August 3. He was born at Springfield, Mass., Oct. 7, 1858, and after graduating from the United States Naval Academy in 1879 studied at the Royal Naval College, Greenwich, England, taking the post graduate degree of Naval Architect. In 1882 he was appointed to the United States Naval Advisory Board, and served as director of repairs and construction at the Norfolk, Va., and Brooklyn, N. Y., navy yards. In 1901 he became chief constructor of the United States Navy with the rank of rear admiral. He resigned in 1903 to become president of the Fore River Shipbuilding Corporation, at Quincy, Mass. He was interested in the development of the Cape Cod Canal. In 1917 he became manager of the division of construction and later assistant general manager of the United States Shipping Board of the Emergency Fleet Corporation, at Washington, D. C. He was a member of the Institute of Naval Architects of London, and a past president of the Society of Naval Architects and Marine Engineers of the United States.

BOWLING. The twenty-seventh annual tournament of the American Bowling Congress was held at Peoria, Ill., the winners in the various events being: Individual, William Eggars, Chicago, 706; two-man team, M. Flick–F. Snyder, Erie, Pa., 1317; five-man team, Tea Shops, Milwaukee, 3190; all events, Bernardo Spinella, New York City, 2014.

BOXING. The most important event in the boxing world in 1927 was the ten-round bout between Gene Tunney, heavyweight champion of the world, and Jack Dempsey, from whom Tunney had wrested the title the previous year. This fistic battle took place in Chicago and 120,000 persons paid about $2,500,000 for the privilege of seeing it. The affair set a new record both in attendance and in receipts.

Tunney retained his title, but an unfortunate episode developed in the seventh round of the bout. In this round Dempsey, who had been clearly outboxed, suddenly landed a terrific blow to the jaw which sent Tunney crashing to the floor. The referee, according to some of the ringside experts, did not begin the count over the prone Tunney at once, while others maintained that the referee actually could have counted fourteen before the dazed Tunney was able to regain his feet. At the call of "nine," however, Tunney was again erect in the ring and succeeded in keeping away from Dempsey until the round ended. From this point on Dempsey was wholly outclassed and had the limit been longer than ten rounds Tunney would undoubtedly have scored a knockout. The referee answered the storm of criticism which centred about his count in the seventh round by explaining that the boxing law of Illinois made it mandatory that when a fighter was knocked down his opponent should retire at once to a neutral corner and that the count must not proceed until he did. The referee contended that he warned Dempsey to retire thus, but that the latter failed to do so.

Another unsatisfactory bout of the year was that between Dempsey and Jack Sharkey, the winning of which by the former gave him his chance for the title bout with Tunney. Again the seventh round figured in a controversy. According to the referee. Dempsey won in this round by a knockout but Sharkey and his backers contended that the blow that ended the battle was a foul and this contention was upheld by several of the newspaper critics present.

In the light heavyweight field Tommy Loughran of Philadelphia established himself at the top by his defeat of Jimmy Slattery. Jack Delaney had previously surrendered the title in this class because of his inability to make the required weight.

Joe Dundee won the world's welterweight championship from Pete Latzo in June but failed to defend his title. Mickey Walker also retained his crown in the middleweight class, refusing to meet the late Tiger Flowers but contenting himself with a bout in England with Tommy Milligan who did not rate very highly. Both Dundee and Walker were suspended in New York State for their failure to face worthy opponents.

In the lightweight division practically the same situation existed, Sammy Mandell, the champion, having declined to defend his title against any strong opponent during the year. Tony Canzoneri and Benny Bass were disputing the ownership of the featherweight crown relinquished by Louis ("Kid") Kaplan.

Many observers maintained that commercialism was obtaining a firmer grip each year on professional boxing and movements were started in various sections of the United States during

1927 to secure legislation which would provide for better regulation of match-making and the conduct of bouts. Those in control of the sport were also faced with the probability that Congress will impose a prohibitive tax of 25 per cent on boxing admissions in excess of $5. This proposal received the indorsement of the committee in charge and was incorporated in the tax measure when Congress met in December. If enacted it would sound the death knell of mammoth purses and perhaps check the trend of the sport toward commercialism.

The Amateur Athletic Union championships were held at Boston, the winners in the various classes being:

112 pounds, Harry Liebenson, New York City; 118 pounds, Thomas Paul, Buffalo, N Y ; 126 pounds, Chris Batalino, Hartford, Conn.; 135 pounds, Frank Burke, San Francisco; 147 pounds, Tommy Lown, New York City; 160 pounds, Joe Hanlon, New York City; 175 pounds, George Hoffman, New York City; heavyweight, Milo Mallory, San Francisco.

Penn State College boxers won the intercollegiate championship with 22 points. U. S. Naval Academy, victor in 1926, finished second with 21 points and Pennsylvania and Massachusetts Tech. tied for third with 7 points each. The individual winners in the various classes follow:

115 pounds, R. C. Collins, Annapolis; 125 pounds, D. J. Weintraub, Annapolis; 135 pounds, Peter Cordasco, Syracuse; 145 pounds, M. R Gerrin, Annapolis; 160 pounds, Allie Wolff, Penn State; 175 pounds, A. Benedict, Penn State; heavyweight, Steve Hamas, Penn State.

BOY SCOUTS OF AMERICA. An organization incorporated in 1910 and chartered by Congress in June, 1916, to develop the character of boys and train them for the duties of adult life by influence brought to bear in their work and play. The National Constitution of the Boy Scouts of America declares the intention to "promote the ability of boys to do things for themselves and others, to train them in scout craft and to teach them patriotism, courage, self-reliance and kindred virtues." Each boy joining the organization takes the Scout Oath, and the Scout Law requires the members to exert such qualities as trustworthiness, helpfulness, loyalty, kindness, cheerfulness, bravery, cleanliness, and reverence. Among the foremost scout activities are camping and hiking, nature study, and many kinds of outdoor work, exercise, and craftsmanship. Successive ranks in membership are attained by passing tests graded in difficulty. Merit badges, 86 in number, may be attained by meeting requirements for each. These cover proficiency in pursuits both of the useful and of the hobby type, such as dairying, plumbing, pioneering, physical development, astronomy, music, chemistry, and others equally diverse. By attaining certain numbers of the merit badges, a boy may rise to the higher ranks of Star, Life, and Eagle scout.

In 1927, 350,000 boys spent a week or more in camp under Boy Scout auspices. Local councils conducted 652 camps; at least 2400 troop camps were also conducted. The Boy Scout movement, in coöperation with the Forestry Department, fights and prevents forest fires, conserves wild life, and plants trees. It renders services in local campaigns of various sorts and coöperates with many national societies and movements. Membership in 1927 was 795,956, and there were 180,447 Scout leaders. The National Council, the governing body, has its offices in the Park Avenue Building, 2 Park Avenue, 32nd and 33rd Streets, New York. In 1927 the officers were: Walter W. Head, Omaha, Neb., president; George D. Pratt, treasurer; James E. West, Chief Scout Executive; Daniel Carter Beard, National Scout Commissioner; Mortimer L. Schiff, International Commissioner. Regional Scout districts, 12 in number, under direct supervision of the National Council's National Scout Executives, were subdivided in 1927 into 661 local councils, of which 639 supported paid executives and maintained permanent headquarters. The boys were organized into troops of 32 each. The troops are made up of patrols of eight or less, each under a boy leader. In small areas, a farm or home Scout Patrol may be formed with as few as four boys. Boys who live in areas so isolated that they cannot join a Troop or Patrol, may become Lone Scouts and carry on the Scout programme alone. Sea Scouting is a part of the Boy Scout programme and provides for older boys training in seamanship and water activities. A scoutmaster commissioned by the National Council is provided for each troop. He must be an adult citizen of proved fitness. Troops are commonly formed in connection with schools, churches, or other existing bodies, and each must be sponsored by a troop committee of three or more adults, who select the scoutmaster and supervise the execution of the programme. The movement is non-sectarian, and without military or political connection. The official magazine is *Boys' Life*. The organization also publishes magazines for scout leaders, merit badge pamphlets, and other material pertaining to the movement.

BRAIN PANTHEON. See PSYCHOLOGY.

BRANDES, brăn′dĕs, GEORG MORRIS COHEN. Danish critic and biographer, died at Copenhagen, February 19. He was born at Copenhagen, Feb. 4, 1842, the eldest son of a Jewish merchant, Hans Brandes. From his mother, who was a freethinking Jewess of strong character, the son inherited independence of mind. He was educated at the University of Copenhagen, and traveled abroad extensively. In 1867 he began to study the critical methods of the French, and he adopted a broad and cosmopolitan view of literary history which previously had been unknown in Scandinavia and which was to become his main characteristic as an author. He also appreciated the growing importance of Ibsen and his genius, and became an intelligent supporter of that dramatist. Brandes' first collection of essays, *Æsthetic Studies*, appeared in 1868, and he then determined to come closely in contact with European modern thought. With that end in view he spent nearly two years in Paris, Rome and London, returning in 1871 to become docent at the University of Copenhagen. In Denmark he was frankly an innovator, and his views on philosophy, literature and religion, so novel and broad, rendered his position extremely difficult, while his talents were generally unappreciated. At the university, where he taught from 1872 to 1877, he delivered a series of lectures which he named *Main Streams of Literature in the Nineteenth Century*, and which he published in a series of volumes, 1872–82; the first, *The Emigrant Literature*, appeared in February, 1872. On the death in 1872 of Carsten Hauch, a Danish poet who had been professor of literature and æsthetics at the University of

Copenhagen since 1851, a memorandum was found in which the opinion was expressed that Brandes was the best fitted of all possible candidates to succeed to the chair. The talents of Brandes did not appeal to the university, on account of his radical innovations and unconventional point of view, but he was allowed to lecture in the public hall, and delivered a second series of lectures, which were published as *The Romantic School in Germany*. In October, 1877, he went to Berlin, where he lived for five years, contributing to German newspapers and lecturing. In 1882 he returned to Copenhagen, where a group of sympathizing friends guaranteed a stipend of $1,000 a year to enable him to act as a private professor, since the university remained closed to him. On the other hand, the university left the chair of literature vacant, in recognition of his power and position in the critical world. From this time on Brandes enjoyed complete recognition in Denmark, and his work became well known among scholars abroad. Particularly with the liberals and with the young he was intensely popular, so that he was able to carry on a productive life in which frequent publication of books resulted, and he was able also to travel. One of the earliest acts of the Liberal ministry when it came again into power in Denmark in 1892 was to confer on Brandes a substantial pension for his public services, and in 1902 he was elected to the professorship of literature in the university which had remained vacant on his account for 30 years. In 1913 he visited England, where he lectured on the reciprocal influence of English and Danish literature, on such topics in philosophy as Nietzsche, whose work he did much to bring to general attention, and on such authors as Shakespeare, Voltaire, Rousseau and Hans Christian Andersen. In the following year he visited the United States. Brandes in his work and teaching constantly remained champion of individuality and self-expression, speaking plainly and fearlessly on matters of politics, churches, sociology and literature, in utterances considered revolutionary at the times when they were made. Not only was he fearless and untrammeled, but his ideas were so presented that his lectures and writings were intensely stimulating, and there were many students who derived from him their first broad conceptions of literature and philosophy, and especially of such figures as Ibsen and Nietzsche. He criticized the Danish government for its reactionary tendencies; the state church for its formalism; the university for its dogmatism and intolerance; and current literature for its ultra-romanticism and its failure to hold touch with life. As a scholar, he had derived from Germany a tendency toward excessive classification, which detracted in a measure from his writing and position as a critic, while at the same time he frequently exhibited racial and rationalistic prejudice. While he never denied his Jewish origin, he never attended the synagogue, and was alienated from the orthodox members of the Jewish race. His early criticism of the Danish Protestant church had brought him apart from that organization, and he later incurred the animosity of the Roman Catholic church; in this connection opposing women suffrage on the ground that since women attended church more than men, giving them the ballot would increase the power of the church. In connection with his feeling towards religious matters, it may be said that in 1925 he published *The Jesus Myth*. All things considered, Brandes not only was the first of Danish critics but was one of the great systematic critics of literature in modern times, ranking with such Frenchmen as Sainte-Beuve, Taine and Brunetière. He was a disciple of Comte and Taine, and of John Stuart Mill and Herbert Spencer, turning to these two English philosophers from such continental influences as those of Hegel, Spinoza and Feuerbach. Brandes was a scientific critic to whom literature was itself a "criticism of life." In reference to his work, he appraised it as follows: "My special gift is a certain creative spirit which makes of me something more than a critic. I am called a critic; that term is too small for me. I am called a philosopher; that term is too big. I am a poet, an artist, not a philosopher. I have the reward of helping to make an epoch; in my time I have inspired poets." He was honored by the degree of LL.D. from the University of St. Andrews, Scotland, and was elected to the Royal Society of Literature, the Rationalist Press Association, the Polyglot Club, and the Rationalist Peace Society of London, as well as the American Academy of Arts and Sciences, the Free Trade Association, and the Thomas Paine Association of New York. His literary output consisted of some 33 volumes of history, biography and criticism, of which the more significant are: *Ludvig Holberg* (1884); *Sören Kierkegaard* (1877); *Danish Poets* (1877); *Impressions of Poland* (1888); *Impressions of Russia* (1888); *Berlin* (1884); *Ferdinand Lassalle* (1887); *Lord Beaconsfield* (1879); *Men and Works in European Literature* (1883); *Men of the Modern Revival; A Study of Ibsen; Poems* (1896); *William Shakespeare* (1898); Complete Works, in 21 vols. (1910); *Goethe* (2 vols.); *Julius Cæsar* (2 vols.); *The Jesus Myth* (1925); *Hellas* (1925); and *Petrus* (1926). Practically all of these have been translated into English.

BRATIANU, Jon. Rumanian statesman, died at Bucharest, November 24. He was born at Florica, Rumania, Aug. 20, 1864, and was the eldest son of the late Jon Bratianu, who was premier of Rumania for thirty years, and who, with the late King Charles, was regarded as the founder of the modern Rumanian kingdom. The younger Bratianu was sometimes called "Jonel," the Rumanian diminutive of "Jon." Other members of the family, of the old aristocracy, have served Rumania with great distinction; at the death of Jon Bratianu he was succeeded by his brother, Vintila, as acting prime minister. Vintila was associated with his brother as minister of finance. Jon was prime minister of the country in 1914 at the outbreak of the World War. For two years he maintained neutrality, realizing the perilous position in which Rumania stood, in close proximity to what was then the Austro-Hungarian Empire. He followed the trend of the country's feelings, however, in its ardent desire for a "Greater Rumania," and in August, 1916, Rumania entered the War on the side of the Allies. Bratianu, however, was farsighted enough to oppose the desire of the Rumanian generals for the immediate invasion of Transylvania. His objections were overborne, however, and the move resulted disastrously for Rumania, which was compelled to sign a humiliating treaty of peace with the Central Powers early in 1918, Bratianu dissenting, and resigning as premier. Later in the year the collapse of the Central Powers freed Rumania from the onerous conditions imposed, as the victors in the war were sympathetic to her aspirations for national expansion.

Bratianu attended the peace conference, and at Paris proved himself to be a stubborn bargainer for his country. He objected strongly to the minority clauses which the statesmen of the Allies insisted on including in the treaty of peace, and believe that the sovereignty of Rumania was in some way impaired by them. He also laid claim for Rumania to the whole of the Banat of Temesvar, and when it was refused he withdrew without affixing his signature to the treaty.

Returning to Rumania, he went into opposition to the government, but in the troublous times of 1022 he emerged as the "strong man" of his country. From that time until he died Bratianu presided over the government, although strongly opposed by the National Peasants' party and others. He was in effect the dictator of Rumania, although his relations with the late King Ferdinand, who trusted him implicitly, were friendly and confidential. He was in the main reserved and suspicious, and he preferred to gain his ends by political manipulation rather than by open and ruthless displays of power. When Prince Carol, elder son of the late King Ferdinand, abjured his right of succession to the throne (after abandoning his wife) and went to Paris to live, Bratianu supported the King in his establishment of the regency, appointed in view of Ferdinand's own illness. After the death of Ferdinand, July 20, 1927, Bratianu took a strong stand against the return of Carol. (See RUMANIA.) During the periods when Bratianu was prime minister of Rumania, and at one time when he was allied with the late Take Jonescu, he initiated and carried through many reforms. Among these the most notable were the introduction of universal suffrage, the agrarian law which divided large estates among the peasants, and measures for the amelioration of the condition of the Jews of Rumania.

BRAZIL. The largest of the South American republics; situated in the northern and eastern part of the continent of South America; a federal republic. Capital and largest city, Rio de Janeiro.

AREA AND POPULATION. The area of Brazil is given at 3,285,318 square miles, which gives it an area more than 250,000 square miles greater than that of the continental United States. The country is divided into 20 states, one territory and one federal district. According to the census of 1920 the population of the republic was 30,635,605, which represents a density of 9.3 inhabitants to the square mile. The principal cities with their populations, according to the same census, are: Rio de Janeiro, 1,157,873; São Paulo, 579,033; Bahia, 283,422, Recife, 238,843; Belem, 236,402; Porto Alegre, 179,263. According to statistics furnished by the Statistical Bureau the population of Brazil on Dec. 31, 1926, totaled 36,870,972, divided among the states, territory, and federal district as follows:

Alagôas, 1,117,045; Amazonas, 409,699; Bahia, 3,859,241; Ceará, 1,520,335; Federal District, 1,360,586; Espirito Santo, 587,451; Goyaz, 640,491; Maranhão, 1,047,206; Matto-Grosso, 312,661; Minas Geraes, 6,902,511; Pará, 1,269,344; Parahyba do Norte, 1,193,260; Paraná, 870,255; Pernambuco, 2,617,310; Piauhy, 738,740; Rio de Janeiro, 1,844,304; Rio Grande de Norte, 666,903; Rio Grande do Sul, 2,683,683; Santa Catharina, 847,656; São Paulo, 5,751,822; Sergipe, 524,095; Acre Territory, 106,374.

Santos is the leading port of Brazil for the entry of immigrants, and the state of São Paulo normally receives more than half of the total immigration into the Republic. The number of immigrants who entered the state of São Paulo during 1926 was 96,887, of whom approximately 70,000 entered through Santos, the remainder, or nearly 27,000, having been landed at Rio de Janeiro and brought to São Paulo over the Central do Brazil Railway. The total number of immigrants entered at Rio de Janeiro in 1926, according to official statistics, was 67,171, this figure presumably including the 27,000 landed for transfer to São Paulo. The immigrants who entered Rio de Janeiro comprised the following nationalities: Portuguese, 22,334; Rumanian, 9379; German, 4021; Spanish, 3156; Syrian, etc., 3123; Brazilian, 1689; the remainder being of miscellaneous origin. Portuguese and Spanish immigrants destined for Rio de Janeiro and Santos outnumber those of Italian nationality, but for the state of São Paulo the latter nationality usually predominates, the total of Italian immigrants entering the state from 1827 to 1925 having been estimated at 904,082 as compared with 353,221 Spanish and 324,096 Portuguese. It is believed, however, that the proportion of Italian immigrants in the total is now declining.

The total number of immigrants entering São Paulo in 1926 compared favorably with the leading pre-war years, and 1926 was the record year since the World War, exceeding the 1925 figures by over 23,000 people. São Paulo has for many years been giving close study to the question of immigration, and has undertaken to maintain a constant supply of agricultural labor for the coffee plantations, going as far as to provide free transportation for the workers, their families, and baggage from their homes in Europe to Brazil. The prospective colonists are passed upon by Brazilian consular officers who grant them free visas and furnish rail and ocean transportation through certain designated companies. Upon arrival of the immigrants in Brazil, the state furnishes free rail transportation to the city of São Paulo, food, lodging, and medical attention at the immigration station, where the immigrants are held until assigned to a "colony," fazenda, or to public land; and free transportation to final destination. The importance of this movement in the economy of a state such as Brazil is apparent, and the benefit to the country, as well as to the immigrants themselves and to their native countries, is obvious. A recent estimate, made by the Minister of Public Instruction and Culture of Prussia, showed that there were over 1,000,000 German settlers in Brazil in 1927.

EDUCATION. Education is free but not compulsory, except in seven states where it is both free and compulsory. According to the latest available statistics, those of the census year, 1920, there were in the various states of Brazil 21,748 primary schools with 1,249,449 pupils; 447 federal government schools, 9612 state government schools, 4712 municipal schools, and 6077 private schools. There were also 450 secondary schools with 48,000 pupils, and 367 professional schools with more than 37,000 students. The University of Rio de Janeiro is the only official university in Brazil.

PRODUCTION, ETC. President Washington Luis in his message read before Congress on the official opening of its session in May, 1927, gave the following statistical résumé for Brazil for the year 1926:

BRAZIL IN 1926

Items	*Paper contos*	*Dollars*
Revenues collected	1,664,582	198,085,377
Actual expenditures	1,697,251	201,972,869
Foreign debt	4,770,105	626,021,664
Internal funded debt	2,392,054	275,555,863
Floating debt	3,295,862	394,514,681
Paper money in circulation:		
Treasury and Bank of Brazil notes	2,569,304	307,545,689
Importation	2,665,000	317,135,000
Exportation	3,181,715	378,624,085
Agricultural production (1925)	8,100,000	963,900,000
Industrial production (1919) .	2,989,176	798,109,992
Industrial production (estimated)	7,200,000	856,800,000
Industrial capital (1919)	1,815,156	484,646,652
Telegraph revenues	31,415	3,738,385
Telegraph expenditures	48,792	5,806,248
Postal revenues	33,548	3,992,212
Postal expenditures	39,282	4,674,558
Railway revenues	169,611	20,183,709
Railway expenditures	229,751	27,340,369

Owing to the vast extent of its agricultural area, the average holding is of large size. Only a small portion is cultivated, but statistics indicated a rapid increase in the amount which in 1923 was placed at about 175,104,657 hectares valued at 10,568,008,000 milreis. Public lands in Brazil are the property of the several states of the Federation, except in such cases where titles have been transferred to the Federal Government for special purposes. In the smaller seaboard states, such as Rio Grande do Sul, Santa Catharina, São Paulo, Rio de Janeiro, Espirito Santo and Sergipe, the greater part of desirable and accessible lands has long been private property. In the interior states, especially Matto Grosso, Amazonas, Para, Goyaz, and Maranhão, large areas of public land remain unsettled and unclaimed. Titles to privately owned land are frequently unsafe—an inevitable result of the methods of acquisition running back for hundreds of years. Thus, titles are sometimes clouded by old grants of large areas which were practically abandoned by the original grantees but who (or whose descendants or assignees) may still retain some legal rights.

The chief crop, and by far the most important commercially, is coffee, which is raised in an area covering about one-eighth of the total and comprising the four states of São Paulo, Espirito Santo, Rio de Janeiro, and Minas Geraes. Four-fifths of the world's coffee crop is grown in Brazil. The coffee exported in 1926 was valued at £70,000,000, and the total exports of the country at £94,000,000. The city of São Paulo is the coffee capital of the world, and more coffee is handled at Santos than in any other part of the globe. Much of Brazil's wealth is derived from the coffee fazendas, and the work on the fazendas attracts the majority of immigrants.

According to the *Brazilian American*, the first coffee plant was brought to Brazil by a Brazilian soldier in the service of King John V of Portugal, two hundred years ago. The exact date of the introduction of coffee is accepted as May 27, 1727. In October, 1927, the second centenary coffee celebration was held in São Paulo. The following figures on the growth of Brazilian coffee production, also taken from the *Brazilian American*, are of interest in this connection:

COFFEE PRODUCTION, BRAZIL AND OTHER COUNTRIES

Years	*Average annual production*	
	Brazil	*All other countries*
	Bags	*Bags*
1871–1880................	3,785,000	3,925,000
1881–1890................	5,628,000	4,324,000
1891–1900................	7,327,000	4,425,000
1901–1910................	13,730,000	3,817,000
1911–1920................	13,529,000	4,518,000
1921–1925................	13,227,000	6,410,000

A bumper coffee crop was expected in 1927–28, the estimate of the Coffee Institute for the amount exportable through Santos, including the production of the States of Parana and Minas Geraes, being 15,274,000 bags. Representatives of the States of São Paulo, Minas Geraes, Rio de Janeiro, and Espirito Santo signed a new agreement on May 28, 1927, with regard to the shipping of coffee from their respective States, this agreement being subject to revision in September. Each month as many bags of coffee as were exported the previous month were to be admitted to the coffee ports of Santos, Rio de Janeiro, and Victoria, a fixed percentage of the amount to be shipped to these ports being allotted to the coffee-producing States tributary to the respective ports.

There is a large variety of other crops of which the most important are cacao, sugar, cotton, rubber, rice, tea, and tobacco. Cotton is grown in nearly all the states, but chiefly in São Paulo, Parahyba, Maranhao, and Ceará.

Coal, gold, diamonds, petroleum, monazite, manganese, platinum, copper ore, and talc are the chief mineral resources. Sufficient coal was being mined to supply about one-half the domestic needs. The forests are very extensive and an important source of wealth. Manufacturing was of practically little importance, but was increasing rapidly. The principal single industry was textiles which employs about 60 per cent of the people engaged in manufacturing. Silk manufacturing was being encouraged chiefly in the form of a government subsidy to silk cocoon producers.

In October, 1927, the U. S. Bureau of Foreign and Domestic Commerce reported that although various superficial examinations of geological structures had been made in Brazil, to determine the possibilities of the existence of petroleum deposits, there had never been competent exploration of the whole country for oil. Such an exploration necessitates the sinking of many test wells, and to do that throughout the several extensive regions in which it is reasonably considered that oil exists would cost many millions of dollars. Representatives of several foreign oil-producing companies, nevertheless, had made reconnaissances in two or three districts. So convinced were they of the existence of deposits in commercially profitable quantities that it was reliably reported that some of these companies would be inclined to expend the required funds necessary for a complete exploration if national and state laws and regulations could be so liberalized as to give them a reasonable assurance of obtaining the fruits of their labor. They alleged that existing restrictions as to areas and as to length of term for which oil lands could be acquired were so unsatisfactory as to discourage them from projects of a serious nature.

COMMERCE. According to the *Boletim da Directoria de Estatistica Commercial* the foreign trade of Brazil for 1925 and 1926 was as follows:

	Tons		*Contos*	
	1926	*1925*	*1926*	*1925*
EXPORTS	1,852,642	1,924,700	3,181,715	4,021,965
IMPORTS	4,849,015	5,018,124	2,678,550	3,376,882

The average exchange for 1925 was 8.314 milreis to the dollar, and for 1926 7.001 milreis to the dollar. One conto equals 1,000 milreis.

In the autumn the U. S. Department of Commerce reported that commercial conditions had somewhat improved during the latter part of 1927 and the prospects for the closing months of the year were more favorable than during the early months. In commercial circles, however, particularly in Rio de Janeiro and São Paulo, the feeling of anxiety in face of trade stagnation continued, and business operations were still restricted to bare necessities. There was one advantage in this situation, however, that increasing restriction of imports was tending to right the Brazilian trade balance which was markedly unfavorable during the earlier months of the year, and larger coffee shipments, which could be reasonably expected during the remaining months, might help to restore the normally healthy preponderance of exports.

FINANCE. Law No. 5 of January 12, 1927, placed the budget of expenditures of Brazil for the fiscal year 1927 at 109,023 gold contos and 1,288,519 paper contos, as follows:

	Gold contos	*Paper contos*
Ministry of Justice and Interior	22	123,921
Ministry of Foreign Relations	6,208	4,480
Ministry of the Navy	1,400	114,127
Ministry of War	100	194,331
Ministry of Agriculture, Industry, and Commerce	548	74,102
Ministry of Highways and Public Works	18,407	505,270
Ministry of the Treasury	87,338	272,288

Law No. 5127 of Dec. 31, 1926, estimated the recepits at 140,605 gold contos and 1,155,736 paper contos, giving a surplus of both gold and paper.

A decree of Dec. 18, 1926, providing for a new monetary system with the cruzeiro as the gold-standard unit, was published in the *Diario Official* of Dec. 23, 1926, and its regulations in the same source, Jan. 9, 1927. The cruzeiro was to be divided into centimos, and will be nine-tenths fine. The paper then in circulation, amounting to 2,569,304,351 milreis, was to be converted into gold on the basis of 200 milligrams per milreis, the method and date of conversion to be determined by an executive decree six months in advance of such conversion. The law also provided for the establishment of a stabilization bureau, with London and New York branches, which would issue bills and have charge of the gold deposits guaranteeing the bills. The law specifies the sources of the gold reserves to be devoted to stabilization. In the latter part of the year $36,000,000 in gold was shipped from the United States to aid in the stabilization scheme. According to these decrees the milreis will have a value of $0.11963 in United States currency. The foreign debt at the beginning of the year was $626,021,664; the internal funded debt, $275,555,863; and the floating debt, $394,514,681.

COMMUNICATIONS. The railway lines owned by the Federal Government totaled 17,957 kilometers in length (1926); of these 8726 kilometers were directly administered by the government, the balance being rented. An extension of 5310 kilometers of track was operated under concession from the Federal Government, 7369 kilometers were either owned by the states or operated under concessions granted by them. The total trackage, including the privately owned lines, was 30,636 kilometers. One of the important projects under way during 1927 was the construction of a line (meter gauge) from Juquia to Itarare, on the Sorocabana Line, and from that point to Fartura and thence to Ourinhos. Some 30 or 40 kilometers of roadbed between Itarare and Ribeirao Vermelho, in the direction of Fartura, have already been built.

It accordance with a contract with a British company, signed in April, 1926, the Railroad of Western Minas Geraes was being electrified (1927) over a section 73 kilometers long from Barra Mansa to Augusto Pestana. The section of the main line was previously expensive to operate on account of the large amount of coal necessary to provide power for the steep grades in crossing the Serra da Mantiqueira. For the same reason trains had to be made up with only a few cars, causing congestion in freight and bad connections with the Uberaba, Tres Coracoes-Lavaras, and Barra Mansa-Porto de Angra dos Reis lines. The electric power was to be developed from the Piloes Falls of the Bananal River, which could furnish 2400 horse power and a three-phase current of 33,000 volts. There were to be five electric locomotives and all the necessary equipment for the development of power at a total cost of £151,640 and 1406 contos. The work was to be concluded on Sept. 27, 1927, according to the terms of the contract.

The Brazilian postal service during 1926 had an income of 33,120,604 milreis and expenses amounting to 39,281,545 milreis, giving a deficit of 6,160,941 milreis, which was somewhat less than for several years past. The postal service handled 1,647,592,396 pieces of mail, as compared with 1,548,719,157 pieces during the preceding year; the 1926 figures do not include the 222,458,491 pieces handled in transit. International parcel-post packages numbered 126,136 during the year, as compared with 107,630 in 1925.

In 1925 there entered the ports of Brazil 22,504 steam vessels of 33,146,010 tons; cleared, 22,556 steam vessels of 33,228,602 tons.

GOVERNMENT. The executive power is vested in the president, who with the vice president is elected directly by the people for four years and is ineligible for reëlection; and the legislative power in the National Congress which consists of the chamber of deputies and the senate, the former having 212 members elected for three years by popular vote on the basis of minority representation, and the latter 63 members elected by direct vote for nine years, one-third being renewed every three years. The vice president is the presiding officer of the senate. President in 1927, Dr. Washington Luis Pereira de Souza (assumed office, Nov. 12, 1926); vice president, Mello Vianna.

HISTORY. In an address read before Congress on the official opening of its session in May, 1927, President Luis discussed the stabilization of Brazilian currency, economy in administration, government operation of public utilities, and plans for highway improvement and extension of aërial and radio communication. In a direct appeal for economy he stated that aside from the railways which constitute the greatest drain on public funds, the postal and telegraph departments represent a constant demand on the country's resources. The deficit in the postal service for 1926 was $720,000 and that of the telegraph service about $2,000,000. The deficits of the railways approximated $7,000,000. The failure of the Federal Treasury to collect all its revenues to which it has a right was one of the principal contributing factors to the annual national deficits. Approximately 40 per cent of the country's total income is from import duties, and therefore the privileges and exemptions granted to various classes of importers seriously curtail the national income. Although the budget provides for a balance, recently increased requirements for service of the public debt would probably have the effect of increasing the expenditures of the government for 1927 considerably beyond the figures given in the budget estimates.

A subject of great interest to the President was the building of highways, and this he meant to make the keynote of his national administration, for he realized the importance of good roads in the development of a country. To this end import duties were increased on automotive vehicles, gasoline, tires, etc., that the proceeds thus obtained might be applied to the development of a highway system which would link the more important districts of central Brazil.

In reviewing the progress of the republic since its beginning in 1889, the President brought out some interesting comparisons. The population had much more than doubled, transportation facilities had increased from a negligible factor to railway and highway services of practically 1 and 1½ kilometers each, respectively, per capita. Mileage of telegraph lines had about quadrupled, and agricultural production and export trade both increased 15 or 16 fold.

In the early months of the year the revolutionary activities in the states of Rio Grande do Sul, Santa Catharina, Matto Grosso and Goyas continued and resulted in the keeping in effect of the state of martial law which the government had been forced to announce some time previous. Reports of desultory engagements continued to filter through the government censorship and such accounts as were published were, of course, always favorable to the government. No decisive action was evidently forced, the laconic ending always appearing, "the rebels were driven into the unsettled portions of the state." These government successes were followed by the lifting of the state of siege early in February, with the announcement that while some revolutionary forces still existed the government was everywhere in control. The claim was made in certain quarters that the revolt was being financed by Russian Communistic circles. A radical law was introduced and passed to curb such activities in the country. One of the drastic provisions of this law which was signed by the President in August was the making of labor strikes illegal. Needless to say this measure and its adoption were bitterly condemned in all labor quarters.

BRETHREN, CHURCH OF THE. A church established in the United States in 1719 at Germantown, Pa. It originated in Schwarzenau, Germany, in 1708, and is the largest of the five branches of the denomination formerly known as the German Baptist Brethren or "Dunkers." Other churches of this group are: The Church of God (New Dunkards); Brethren Church (Progressive Dunkers); German Seventh Day Baptists, and Old Order German Baptist Brethren. The policy of the Church of the Brethren corresponds more nearly to the Presbyterian than to any other specific ecclesiastical form. It comprises 49 district conferences and holds a General Conference annually. Figures for 1927 showed 1040 churches and a membership of 131,648; Sunday schools numbered 1180 and scholars, 131,000. Foreign missionary work was carried on in India, China, Sweden, and Africa. The total membership in India and China was 4545 in June, 1927. Expenditures for the year ending February 28, 1927, totaled $313,948.83. Eight colleges, one academy, and one theological seminary and training school maintained by the denomination had an enrollment of 4367 students. Officers of the General Conference in 1927 were: The Rev. J. W. Lear, Chicago, Ill., moderator; the Rev. H. K. Ober, Elizabeth, Pa., reading clerk; and I. B. Book, North Manchester, Ind., writing clerk. Otho Winger, North Manchester, Ind., was the president of the General Mission Board. The *Gospel Messenger* is the official organ of the denomination. The *Missionary Visitor* is the promotional periodical of the General Mission Board. The headquarters of the General Mission Board, General Sunday School Board and the Council of Promotion are located at Elgin, Ill., of the General Education Board, 3635 Orday St., N. W., Washington, D. C., and of the General Welfare Board, at Warsaw, Ind.

BRETT, LLOYD M. Brigadier General, United States Army, died at Washington, D. C., September 23. He was born at Dead River, Me., Feb. 22, 1856, and graduated from the United States Military Academy in 1879, being commissioned immediately second lieutenant in the Second Cavalry. He served at various posts in the West and received the Congressional Medal of Honor for gallantry in action against Sioux Indians, Apr. 1, 1880. During the Spanish-American War and the Philippine insurrection he served with higher rank in the volunteer service, and he became colonel of cavalry in the regular army, Aug. 25, 1914. From 1903 to 1908 he was adjutant general of the District of Columbia militia, and from 1910 to 1916 he was superintendent of Yellowstone National Park. Commissioned brigadier general in the United States army, Aug. 5, 1917, he commanded the 160th Infantry Brigade, with which he served overseas until June, 1919. In the World War he was decorated as an officer of the Legion of Honor, and received the Croix de Guerre. On his return to the United States he served as colonel of the Third United States Cavalry until his retirement from active service in 1922.

BRIAND PROPOSALS. See Arbitration, International.

BRIDGES. In 1927 the demands of motor vehicle highway traffic continued and as a result a number of large and important bridges were built or planned. Most of these were toll bridges and it seemed to be more generally recognized that structures of this kind should be compelled to pay their own way whether they were built as private enterprises or by local or state authorities. The matter continued to be one of general discussion although where private construction was undertaken provision usually was made for the adequate protection of the state and for the structure to revert to the state after a stated number of years, or at least under the franchise it could be acquired on specified conditions. Bridge construction was a prominent feature in the construction steel industry in the United States during 1927, the gain in bridges over the previous year being estimated at 70 per cent. American steel plants had under way six large bridges, two over Arthur Kill between New Jersey and Staten Island, one between New York City and Fort Lee, N. J., the Mid-Hudson Bridge at Poughkeepsie, N. Y., the Lehigh Valley R. R. Bridge over Newark Bay, N. J., and the Delaware, Lackawanna and Western R. R. Bridge over the Hackensack River. These six bridges alone totaled some $45,000,000 in the year's steel construction work, but there was corresponding activity in the construction of smaller highway bridges during the year.

A few important railway bridges completed during the year shared interest with the highway structures. In many cases, however, a combined railway and highway bridge was built, vehicle traffic using an upper deck. A structure of this type was completed at Bath, Maine, across the Kennebec River, navigation being provided for by a lift span at the centre of the river. Likewise, a new bridge across the Mississippi River at Fort Madison, Iowa, built by the Atchison, Topeka and Santa Fe R. R., had the upper deck leased for a highway crossing.

Hudson River Bridge. This notable highway suspension bridge with a 3500 foot main span, across the Hudson River between New York City and Fort Lee, N. J., described in the 1926 Year Book, was put under construction during the year. The plans were carefully restudied and contracts were let for the west main pier, the rock cut on the west approach, the anchorage tunnels, and the cable towers and suspended superstructure. The west tower foundation consists of two separate piers, one for each tower leg, and at the end of the year one of these had been carried up nearly to water level. Each of these piers was being built in a steel sheet pile cofferdam about 100 feet square which had been excavated down to bed rock, which at this point consists of Newark sandstone and lies at a depth of 45–70 feet below the water and slopes down towards the river. When the bids for the superstructure were called for the contractors were permitted to bid alternately on eyebar and wire cable designs. As the lowest bid was for the wire cable, accordingly the contract was let on this basis. The accompanying diagrams show this new bridge in comparison with similar structures.

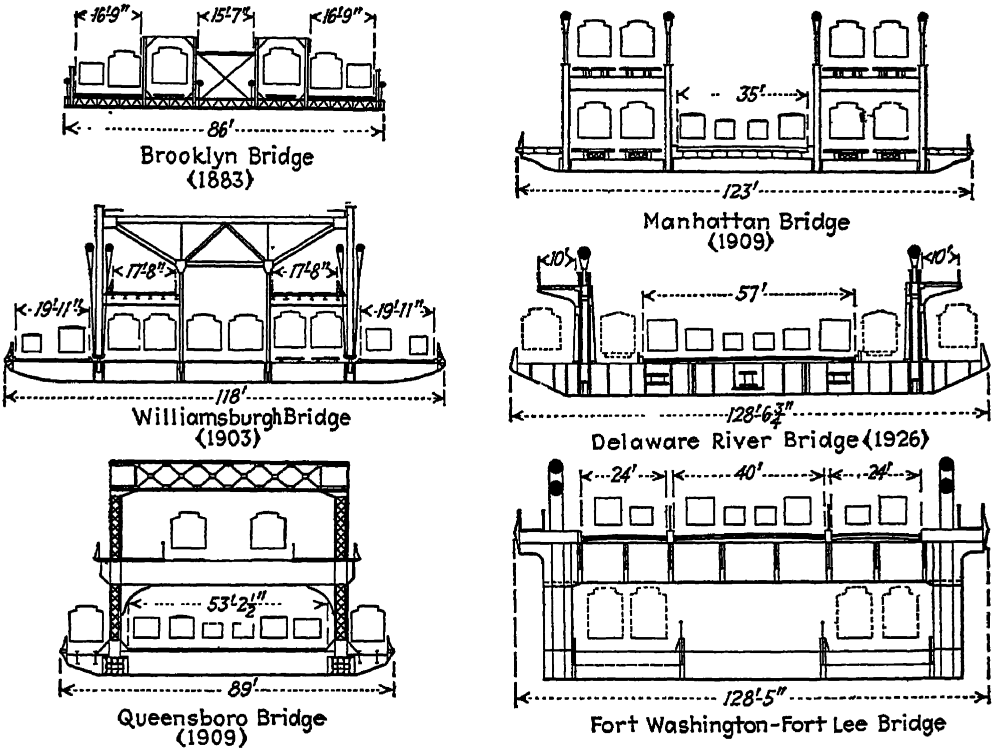
Staten Island Bridges. Important progress was made on the two Arthur Kill Bridges between Staten Island and New Jersey, discussed in the Year Book for 1926. The cantilever spans of the Outerbridge crossing were practically completed by the end of the year. Another important bridge in this region, also to be built by the Port Authority, was the steel arch bridge of 1600 feet span across the Kill Van Kull between Staten Island and Bayonne, N. J. For this project the approval of the United States War Department had been secured as to clearances, and bonds to provide for its erection were sold. It was stated that active construction would begin in 1928.

Poughkeepsie Bridge. During the year notable progress was made on the 1500-foot span suspension bridge to carry the State highway across the Hudson River at Poughkeepsie, N. Y. The work of the year involved the substructure, two main piers being sunk by dredging as open cylinders to depth of about 125–135 feet. At the end of December the west pier was nearly completed, while at the east pier due to the tipping after grounding of the reinforced-concrete cylinder it was necessary to carry on righting operations.

Arlington Memorial Bridge. The Arlington Memorial Bridge over the Potomac River at Washington, D. C., advanced to a point during the year where it was possible to let the contract for the construction of the reinforced concrete barrel superstructure. The pier construction was nearly completed at the end of 1927 and everything was in readiness to complete this notable structure. The Arlington Memorial Bridge was designed as a monument as well as a means of communication and is marked by costly stone facing and architectural ornament and other features. This involved a very high cost for a bridge of this size.

Havre de Grace Bridge. During the year the well-known Havre de Grace Bridge across the Susquehanna River on the main highway route from Philadelphia to Baltimore was reconstructed and a second deck added so that one-way traffic was carried on each deck. This bridge was built by the Pennsylvania R. R. as a single track railway bridge in 1873, and was abandoned in 1908 when the railway constructed a double track bridge. It was offered to the local authorities for a highway bridge, but the two counties concerned refused to accept the bridge. It was then given to a group of seven citizens who operated it as a toll bridge until February, 1923, when it was purchased by the State for $585,000 and used as a toll bridge until the original cost was returned. It was found necessary to enlarge the bridge to satisfy traffic and instead of rebuilding it to give greater width it was decided to place one driveway above the other, and construct the necessary approach spans. This was done at a cost of approximately $300,000 for providing two 12-foot roadways and approach spans, a sum that would be received in tolls within practically a year.

Detroit-Windsor Bridge. On June 28, the final step was taken in the series of authorizations required for the execution of a toll bridge project across the Detroit River to Windsor, Ontario, to be built by a private company. At a referendum election in Detroit a vote of 66,-



Brooklyn Bridge (1883)

Manhattan Bridge (1909)

Williamsburgh Bridge (1903)

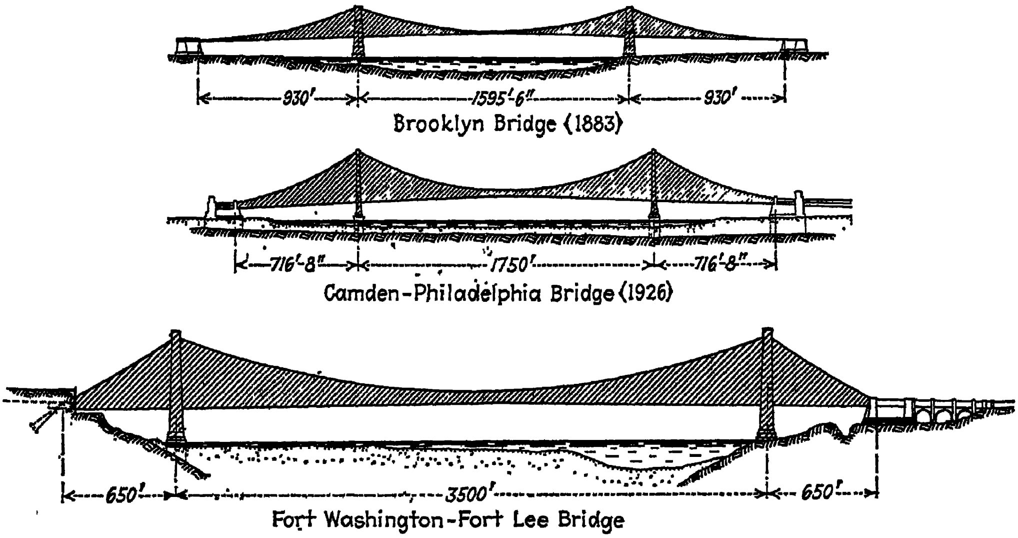
Delaware River Bridge (1926)

Queensboro Bridge (1909)

Fort Washington-Fort Lee Bridge

From Engineering News-Record

BRIDGE SECTIONS THROUGH THE ROADWAY



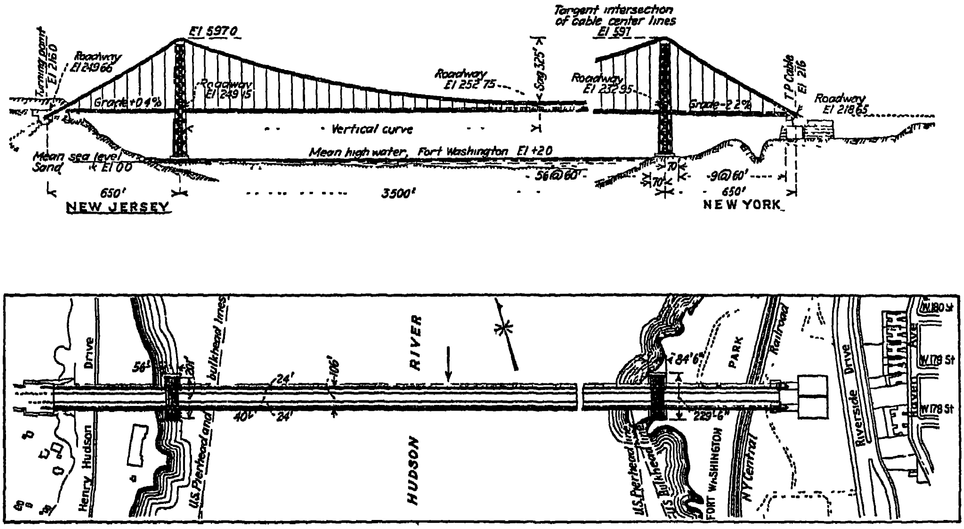
Brooklyn Bridge (1883)

Camden-Philadelphia Bridge (1926)

Fort Washington-Fort Lee Bridge

From Engineering News-Record

SUSPENSION BRIDGES OF LONG SPAN



From Engineering News-Record
ELEVATION AND PLAN OF FORT WASHINGTON-FORT LEE BRIDGE

000 in favor, 8000 against, was given in favor of a street crossing franchise asked by the American Transit Co. This bridge involves an 1850-foot suspension span located on a line from 21st Street, Detroit, to Huron Line Road, Windsor, Ontario, and the total cost of the enterprise was estimated at approximately $22,000,000. The Detroit International Bridge Co. was incorporated in Michigan to take over the assets of the American Transit Co., and the Canadian Transit Co., on the two shores respectively, and, in July, $20,000,000 of bonds were placed on the market.

The bridge was to have a total length of 7542 feet, including the main span of 1850 feet, and carry a 47-ft. roadway on a single deck. A contract was entered into for construction and work was started, so that at the end of December pier construction was in progress.

San Francisco Bay Bridge. During 1927, continuing the consideration of the construction of the toll highway bridge from San Francisco to the East Bay cities, the San Francisco Supervisors decided to select the site and fix on general features of the project before deciding on the award of the franchise or on public construction. The city's board of engineers during the year recommended that the best location would be with the terminal in the city at Rincon Hill, with second choice at Hunters Point, and the third choice between Telegraph Hill and Goat Island. The city duly made application to the U. S. War Department for the approval of clearances for the bridge to be constructed at the Rincon Hill site, but the U. S. Navy Department offered objections on the ground that it would interfere with the use of the Mare Island Navy Yard and would restrict the operations of the fleet. Accordingly the application was denied by the U. S. War Department, but the city determined to take the matter up directly with Congress.

Carquinez Strait Bridge. On May 21 the toll bridge across Carquinez Strait, near San Francisco, was opened to traffic, being formally dedicated on that day. This bridge which is 4482 feet in length provides a 30-foot structure, with two sidewalks, and is located on the continuous North and South Highway. The structure consists of two main spans of 1100 feet each, making it the second largest cantilever bridge in the United States and the fourth largest in the world, being exceeded by the Queensboro Bridge in New York City with two spans of 1182 and 984 feet, respectively, and the Quebec bridge over the St. Lawrence, with a main span of 1800 feet, and the Forth in Scotland, with two spans of 1700 feet. In addition to the two main cantilever spans of 1100 feet there are two anchor arms of 500 feet and a central tower span of 150 feet, making the total length of the main span 3350 feet as compared with 3724 on the Queensboro Bridge. Each 1100 foot span consists of two cantilever arms of 333 feet, 4½ inches and a suspended arm 433 feet 2⅜ inches. At the other end of the bridge there is a steel viaduct approach 1132 feet in length, making the total length of the bridge 4982 feet. The double-span cantilever design was adopted in preference to a 1950 foot suspension bridge, on the score of lower cost and was duly approved by the U. S. War Department. The design of the bridge provided for earthquake resistance and involved a total of 13,294 tons of steel. The bridge apparently met a great need and on the day after opening almost $8000 in tolls were collected on a rate of 60 cents for automobiles and 10 cents for each passenger.

Inter-City Bridge. During the year the Inter-City Bridge on the new highway between St. Paul and Minneapolis, Minn., was completed. This bridge, referred to in the Year Book for 1926, was a concrete structure with five arches, with a total length of 1521 feet. It was a bridge of attractive design and afforded much needed facilities for increasing vehicle traffic.

Mount Hope Bridge. The legislature of the State of Rhode Island granted a franchise for a private toll bridge to connect the Island of Rhode Island with the mainland between Portsmouth and Bristol, and late in the year contracts were let and pier foundation work was placed under way. This was to be a suspension bridge with 120 foot main span.

Reconstruction of High Bridge. During the year reconstruction of High Bridge, across the Harlem River, New York City, was in active progress and this picturesque structure of Roman-type masonry art aqueduct was being rebuilt in order to provide unimpeded navigation in the channel of the river. Four of the piers of High Bridge were located in the 15-foot channel planned by the engineers of the U. S. War Department, so it was necessary to evolve virtually a new design to effect the crossing. The plan adopted was to use the steel-arch span converting two of the old masonry piers with abutments of sufficient size to carry the new arch. High Bridge consisted of 15 arch spans of granite, with a total length of 1197 feet over the abutments, there being six 50-foot arches on the Bronx shore, eight 80-foot arches, forming the original river span, and one 50-foot arch on the Manhattan shore. The eight 80-foot arches of the river span were reduced to five, by filling operations. The new construction involved the enlargement of the piers under water to form adequate supports for the arches and the removal of the piers themselves so that the new arch could be constructed. This arch has a span of 425.88 feet from centre to centre of end piers. The plan was to erect a steel arch on falsework without interfering with navigation on the river or with other traffic which the bridge crossed.

Newcastle-Gateshead Bridge. The New Road bridge across the Tyne between Newcastle and Gateshead in England was under construction during the year, the abutment pieces being built and the erection of the steel span begun. This was a steel arch bridge with a span 531 feet from pin to pin, with a rise of 170 feet, affording a clear head room for ships of 84 feet and having its roadway 93 feet above high water. This roadway includes a double trolley track and provides for heavy traffic where 100 tons on four wheels is taken as the basis of loading. The arch consists of two crescent-shaped ribs at 45-foot centres connected by lateral and sway placing. Towards the abutments the roadway is carried on columns supported on the upper booms of the ribs, while in the centre it is supported by hangers from the lower booms. The approaches on each side of the bridge are carried by continuous girders at 34 feet, supported by steel columns.

Sydney Harbor Bridge. During the year progress was made on the erection of the Sydney Harbor Bridge in New South Wales which had a total length, including approach spans, of 3770 ft., its principal feature being a single arch span across the harbor. This span has a length of 1650 feet and affords a clear headway of 170 feet at high water. From the water level to the top of the arch the height was 450 feet. Several of the approach spans on the north and south sides of the harbor were completed and work was actively in progress on the abutment towers for the main arch span. These towers are of concrete, faced with granite and have a height of 285 feet and measure at their bases 222 feet by 162 feet. At the bases of these towers the main bearings for the arch ribs, weighing 296 tons each, were placed in position and were designed to take an estimated total thrust of 20,000 tons. The diameter of the main bearing pins was 14½ inches.

Makurdi Bridge. Late in the year the contract was awarded for one of the longest bridges on the African continent, to be built over the Benue River at Makurdi, 290 miles inland from Port Harcourt on the Eastern Division of the Nigerian Railway. This bridge was to comprise 13 spans, with a total length between abutments of 2584 feet and was to be built within four and one-half years. The contract price was £960,504. The object of the bridge was to afford better facilities for rail and road traffic than was possible with the train-ferry service.

Bagneux Bridge. During the year there was completed at Bagneux, near Paris, what was stated to be the largest concrete bow-string girder bridge in the world, having a clear span of 286 feet 6 inches. This bridge followed an earlier structure with 180-foot span, built some years previously at Nantes, France. The bridge was of interest to engineers in view of the fact that in this type of structure secondary stresses were more important than the stresses directly produced by the vertical loading. The ribs were treated as arches permanently hinged at the springs and were of H-section with upper and lower flanges spirally reënforced. The foundations of the bridge consisted of four circular mass concrete columns which were carried down 65 feet below ground level.

International Peace Bridge. On August 7 the international bridge between Buffalo and Fort Erie was formally dedicated by the meeting of the Prince of Wales and Vice President Dawes.

BRIGHAM YOUNG UNIVERSITY. An institution of higher education at Provo, Utah, founded in 1875, and maintained under the auspices of the Church of Jesus Christ of Latter Day Saints. It comprises colleges of arts and sciences, education, commerce and business administration, applied science, fine arts, and divisions of research and extension. The 1927 summer session enrollment was 426, and the fall session enrollment was about 1500. There were 90 members on the faculty. The budget for the year was $301,000. The library contained 50,000 volumes and 45,000 pamphlets. President, Franklin Stewart Harris, Ph.D.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. An association founded in 1831, when it first met at York, composed of 13 sections, representing all branches of pure and applied science. For the annual meeting in 1927, which was held at Leeds, August 31, to September 7, there were reported the following sections, with their presidents, who delivered addresses on the subjects named: Mathematics and Physics, Prof. E. T. Whitaker, “The Outstanding Problems of Relativity”; Chemistry, Dr. N. V. Sidgwick, “Coördination Compounds”; Geology, Dr. H. H. Thomas, “Tertiary Volcanic Activity in Britain”; Zoölogy, Dr. G. P. Bidder, “The Ancient History of Sponges and Animals”; Geography, Dr. R. N. Rudmose Brown, “Problems of Polar Geography”; Economics, Prof. D. H. MacGruder, “Rationalization of Industry”; Engineering, Sir J. B. Henderson, “Invention as a Link in Scientific and Economic Progress”; Anthropology, Prof. F. G. Parsons, “Englishmen of the Future”; Physiology, Dr. C. G. Douglas, “The Development of Human Physiology"; Psychology, Dr. W. Brown, "Mental Unity and Mental Dissociation"; Botany, Prof. F. E. Fritsch, "Early Beginnings of Plant Life"; Education, the Duchess of Atholl, M. P., "The Broadening of the Outlook of Education"; Agriculture, Mr. C. G. T. Morison, "Agriculture in its Relation to Education."

A message from the Prince of Wales, handing over his presidency of the Association to his successor, Sir Arthur Keith, was read, in which the prince commented upon the firm foundations which were being laid for an Imperial Scientific Service and in which he announced the gift of £10,000 from Sir Alfred Yarrow, to be expended within twenty years, for the general purposes of the Association. Sir Arthur Keith delivered an address on: "Darwin's Theory of Man's Descent as it Stands To-day." An important contribution to the programme of the Association was made in the paper on "The Requirements of the Population in Milk-Fat and the Available Supply," by Dr. Cramer, based on an investigation carried out under the auspices of the Medical Research Council. Sir Arthur Keith accepted for the Association the offer of G. Buckston Browne, surgeon, of London, to purchase, restore and endow Down House, the home of Darwin, at a cost of £15,000.

It was announced that the 1928 meeting would be held at Glasgow; the 1929 meeting in South Africa. The officers elected for 1928 were: President, Prof. Sir W. H. Bragg, K. B. E., F. R. S.; General Secretaries, Dr. F. E. Smith, C. B., F. R. S.; Prof. J. L. Myres, O. B. E.; General Treasurer, Dr. E. H. Griffiths, F. R. S.; Secretary, O. J. R. Howarth, O. B. E.

BRITISH COLUM'BIA. A Canadian province on the Pacific Ocean, lying between Alaska and Alberta. Area, 355,855 square miles; population, according to the census of 1921, 524,582 as compared with 392,480 in 1911. The census bureau estimate in 1925 was 560,500. The principal cities with their populations in 1921: Victoria, the capital, 38,727; Vancouver, 117,217; New Westminster, 14,495. The movement of population in 1925 was: Births, 11,604; deaths, 4812; marriages, 6792. There is a complete system of free and non-sectarian education, ranging from primary to collegiate instruction. In 1925 there were 992 elementary schools with 2916 teachers and 87,357 pupils and 71 high schools, with 378 teachers and an enrollment of 10,597 pupils. The area of the timberland of British Columbia is estimated at more than 100,000,000 acres, containing roughly 400,000,000 feet of merchantable timber. The value of lumber, lath, shingles and pulpwood in 1925 was $81,000,000. The mineral resources are abundant. The value of the output in 1926 was $67,718,400 as compared with $61,492,242 in 1925. The leading mineral in value was lead. The other important minerals are coal, copper, gold and silver. For figures pertaining to agriculture and manufacturing, see CANADA.

The 1925–26 budget figures showed a revenue of $21,775,869 and expenditures of $21,675,076. The government is under a lieutenant-governor and a legislative assembly of 48 members elected for five years. The province is represented in the Canadian legislature by six members in the senate and 14 members in the house of commons. Lieutenant-Governor in 1927, Robert R. Bruce; prime minister and president of the council, John Oliver; provincial treasurer, minister of mines, and commissioner of fisheries, William Sloan; agriculture, E. D. Barrow; education, finance, and industries, J. D. Maclean; public works and railways, W. H. Sutherland; attorney-general and minister of labor, A. M. Manson; lands, T. D. Pattullo.

BRITISH EAST AFRICA. A British possession covering a large area of Africa, and comprising KENYA COLONY, UGANDA PROTECTORATE, and ZANZIBAR. See these articles.

BRITISH GUIANA, gē-ä'nȧ. A British colony on the northeastern coast of South America, including the settlements of Berbice, Demerara, and Essequibo; bounded on the north by the Atlantic Ocean, on the east by Dutch Guiana, on the south by Brazil, and on the west by Venezuela. Area, 89,480 square miles; population, according to the census of 1921, 297,691, excluding about 9700 aborigines in the remoter districts. An official estimate of the population in 1925 placed it at 304,412. In the same year the movement of population was: Births, 10,197; deaths, 7352. The capital is Georgetown, with a population of 56,616. The chief pursuit is agriculture and the principal products are sugar, rice, and coconuts. Stock raising is of some importance. The number of cattle in 1925 was 134,629; horses, 1776; sheep, 24,399; and goats, 13,650. The mineral resources are considerable, gold, rough diamonds, and bauxite being found in large quantities. The principal exports are sugar, rough diamonds, rice, timber, and rum; and the chief imports are flour, fertilizers, machinery and hardware, and textiles. Statistics on revenue, expenditure, and trade for 1924 and 1925 are:

	1924	*1925*
	£	£
Revenue	1,056,238	1,095,574
Expenditure	1,065,457	1,126,394
Imports	2,744,145	2,908,434
Exports	3,398,529	3,130,706

In 1925, 3224 vessels with a total tonnage of 1,219,231 entered and cleared the ports of British Guiana. Practically all the vessels were British and Dutch. There are 97½ miles of railroads. The colony is administered by a governor, assisted by a court of policy, consisting of seven official members and eight elected members, and a combined court, containing in addition to the above, six finanical members elected by the registered voters. Governor in 1927, Sir Cecil Hunter Rodwell.

BRITISH HONDURAS, hŏn-dōō'ras. A British crown colony on the Caribbean coast of Central America, east of Guatemala, and 700 miles west of Jamaica. Area, 8598 square miles; population, according to the census of 1921, 45,317; estimated, Dec. 31, 1925, 47,893. The movement of population in 1925 was: Birth rate, 37.27 per thousand; death rate, 21.38 per thousand; marriages, 405. In 1925 there were 69 primary schools with an enrollment of 6787. The chief pursuits are agriculture and forestry although only a small part of the land is cultivated. In the higher lands good pasturage is to be found.

The chief exports are bananas, mahogany, cedar, and other forest products, plantains, coconuts, and chicle. The chief imports are clothing, cotton and silk goods, milk, flour, machinery and hardware. The United States leads all other countries in respect both to imports and exports. The value of imports in 1925–26 was $4,515,119; exports, $3,575,786. The revenue in 1925–26 was £204,997 and the expenditures, £199,647. The public debt in 1924–25 was £153,443. The tonnage entered in 1925 was 329,027 tons. The administration is under a governor assisted by an executive council of six members and a legislative council of five official and seven unofficial members. Governor and Commander-in-Chief in 1927, Maj. J. A. Burdon.

BRITISH INDIA. See, India, British.

BRITISH NEW GUINEA. See Papua.

BRITISH NORTH BOR′NEO. A British colony, comprising the northern part of the island of Borneo. Area, about 31,106 square miles; population, at the census of 1921, 257,804, most of whom were Mohammedan settlers in the coast regions and aborigines in the interior, the Europeans numbering only 533. The most numerous tribes were the Dusuns (112,287), Muruts (37,447), and the Bajaus (33,070). The chief towns are Sandakan, with a population of 11,936 on the east coast and Jesselton, on the west coast.

Only a small part of the soil is arable. The principal products are: Timber, coconuts, rye, sago, gum, coffee, fruits, spices, gutta-percha, camphor, rattans and other forest products, and tobacco. Coal, iron, gold, and mineral oils are also to be found to some extent. The trade is chiefly carried on with Great Britain almost entirely through the ports of Hong Kong and Singapore. There is a railway 127 miles long running from Jesselton to Melalap, with a branch to Brunei Bay. Statistics of finance and trade for 1924 and 1925 were:

	1924	*1925*
	£	£
Revenue	371,007	399.559
Expenditure	275,601	270,022
Imports	827,662	854,399
Exports	1,301,715	2,083,800

The tonnage entering in 1925 was 381,954 tons. The territory is under the jurisdiction of the British North Borneo Company, and the administrative functions are exercised by a governor in Borneo and a board of directors in London. Governor in 1927, J. L. Humphreys.

BRITISH SOMALILAND. See Somaliland, British.

BRITISH SOUTH AFRICA. See South Africa, British.

BRITISH WEST AFRICA. The general name given to the following British colonies in West Africa; Nigeria (colony and protectorate); Gold Coast (comprising the Gold Coast colony, Ashanti, and the Northern Territories); Sierra Leone (colony and protectorate). See separate articles.

BROOKINGS INSTITUTION. An association established in 1927, in Washington, D. C., as the outgrowth of experimentation in research and training conducted there for some years by the Institute of Economics, the Institute for Government Research, and the Robert Brookings Graduate School of Economics and Government. The new institution which is an amalgamation of these three agencies is designed to cover eventually the entire range of social sciences, and to provide facilities for research and advanced research training in such subjects as economics, government administration, political relations, history, law and social organization. It affords an opportunity for young graduate scholars to spend from one to three years in a well equipped research organization. In addition, it provides headquarters for visiting scholars from the United States and foreign countries, who come to the national capital to make use of the great amount of material available there on economics, political, historic, social, administrative, and legal problems, as found in the records of the various departments of the government. Plans have been prepared for a group of attractive buildings to serve as individual offices, statistical, conference and seminar rooms, an assembly hall and library, living accommodations and recreational and club facilities. An endowment of several million dollars has been assured for carrying on the work of the Institution. The officers of the Board of Trustees were: Chairman, Robert S. Brookings, the founder of the Institution; vice chairman, Leo S. Rowe; treasurer, Frederic A. Delano; President, Harold G. Moulton, Director of the Institute of Economics and Chairman of the Problems and Policy Committee of the Social Science Research Council.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES. An institution at Brooklyn, N. Y.; founded in 1824, composed of three divisions: Education, Museums, and a Botanic Garden. It was incorporated in its present form in 1890. Membership is open to all who are interested in any branch of science or art. The Institute is divided into the following departments, composed of members interested in a particular field: Agriculture, fine arts and architecture, astronomy, botany, dramatic art, electricity, engineering, home economics, music, pedagogy, philology, photography, physics, psychology, French language and literature. These departments conduct educational courses, addresses, lectures and concerts. A forum conducted by the departments of political science and sociology provides for the discussion of current problems. The enrollment in the School of Pedagogy in 1927 was 1600; the attendance at lectures, 295,376; and at all other activities, 961,875. The Museum of the Institute contains collections in the fields of art, ethnology, and natural science, and the Botanic Garden comprises over fifty acres. The library contained over 26,000 volumes. In 1927 the permanent funds totaled $2,611,240.68, and those to meet current expenses, $674,964.98. The President of the Board of Trustees was Frank L. Babbott; Director of the Department of Education, Charles D. Atkins, of the Museum of Arts and Sciences, William Henry Fox, and of the Botanic Garden, C. Stuart Gager. Headquarters are at the Brooklyn Academy of Music, 30 Lafayette Avenue, Brooklyn, N. Y.

BROWN, William Cabell. Protestant Episcopal Bishop of Virginia, died in London, England, July 25. He was born at Lynchburg, Va., Nov. 22, 1861, and studied at the University of Virginia and at the Theological Seminary of Virginia, near Alexandria, Va., being at the latter institution 1889–91. In the latter year he was made deacon and also was ordained priest, and from 1891 to 1914 served as a missionary in Brazil, where he translated the Book of Common Prayer and the Bible into Portuguese. In 1901 he was elected missionary bishop to Porto Rico, but declined. He was consecrated bishop coadjutor of Virginia, Oct. 28, 1914, and upon the death of Bishop Gibson in 1919 succeeded as bishop. Bishop Brown received the degree of D.D. from the University of the South, at Sewanee, Tenn. He had been president of the Synod of the Province of Washington since 1920. He was a member of the Commission of the Revision and Enrichment of the Prayer Book, and was elected to the National Council of the Protestant Episcopal Church in 1919.

BROWNELL, Clarence Ludlow. American author and educator, died at Jacksonville, Fla., February 2. He was born at Hartford, Conn., June 6, 1864, and was educated at the Military Academy at Stamford, Conn., and later at Harvard College and the Stevens Institute of Technology. Going to Japan, he was instructor in English and military drill in government and private schools for five years. Later he wrote extensively on Japanese and Oriental subjects, in London. Returning to America, he became associate editor of *East and West* in San Francisco, and a member of the staff of *The Clarion*. He was head master of the Dayton, Ohio, Latin School in 1909, and instructor in English and mathematics in Valparaiso University, Indiana. He also carried on social service and community survey work, studying educational systems, particularly at Gary, Ind. His health failed in 1922, and from 1925 he lived in Florida. He was a Fellow of the Royal Geographical Society and of the Society of Arts, and a member of the Japan Society of London. His writings include: *Tales from Tokio* (1900); *Hongwan-ji at Home and Abroad* (1902); *The Heart of Japan* (1902); *Japanese Wrestling* (1903); *Japanese Archery* (1903); *Japanese Swordsmen* (1903); *Europe and America in Japan; Japan in California* (1906); *A Pacific Pacific* (1914); *Educational Reciprocity* (1916); *Japan and America's Trade Interests* (1916); and *Japan's War Fund Limit* (1919).

BROWN UNIVERSITY. An institution of higher education at Providence, R. I.; founded in 1764. In the autumn of 1927 the enrollment was 2180, of whom 250 were graduate students; 1339 undergraduate men, including 297 seniors, 278 juniors, 311 sophomores, 428 freshmen and 25 specials; 491 undergraduate women; and 100 school of education students. The faculty of 187 included 102 professors, 45 instructors and 40 assistants. The permanent productive funds of the university amounted to $8,759,203.83 of which $8,248,543.53 was an endowment of the Men's College and $510,660.30 an endowment of the Women's College, and the total income from these funds was $456,437.01. The library contained 350,000 volumes. During the year the graduate department of the university was made a graduate school, with a dean and a registrar. A new biological annex and a new gymnasium were constructed; also a psychological laboratory to house the new psychological department, headed by an associate professor. Gifts of five fellowships, of $1,000 each, for graduate study at Brown were announced. President, William Herbert Perry Faunce, D.D., LL.D.

BRUCKNER, Eduard. German geographer, died May 21. He was born at Jena, Germany, in 1862, and was educated at the Universities of Dorpat and Munich. From 1885 to 1891 he was editor of the *Meteorologischen Zeitschrift*, and from 1888 to 1904 he was professor of geography at the University of Bern. In the latter year he became professor of geography at Halle, and in 1906 he went to Vienna to fill the chair in the same subject. He became editor of the *Zeitschrift für Gletscherkunde* in 1906. Among his works were: *Die Vergletscherung des Salzachgebietes; Klimaschwankungen seit 1700; Die Feste Erdrinde und ihre Formen; Die Schweizere Landschaft Einst und Jetzt;* (with A. Penck) *Die Alpen in Eiszeitalter*.

BRUNEI, broo-nī'. A British region on the northwestern coast of the island of Borneo. Area, about 2500 square miles; population, according to the census of 1921, 25,444, of whom the Europeans numbered only 35, the bulk of the population being made up of Malays and native Borneans. Brunei is the chief town with a population of about 10,000. Among the principal products may be mentioned mangrove extract, rubber, coal, sago and jelutong. Cloth-weaving, silverware, brass-founding, and boat building are found among the native industries. In 1925 the chief exports were cutch, coal, rubber, jelutong, and forest products; the chief imports, rice, tobacco, kerosene oil, piece goods and sugar. The revenue in 1925 was £36,782; expenditure, £28,616; public debt, Dec. 31, 1925, £50,167. The administration is in the hands of a British Resident, the sultan retaining the name only and with his two principal ministers receiving a subsidy from the British government. Sultan in 1927, Ahmed Tajudin Akhazul Khairi Waddin, a minor, who succeeded his father in September, 1924. British Resident, O. E. Venables.

BRUSHINGHAM, John Patrick. American Methodist clergyman, died at Chicago, Ill., April 7. He was born at Cuba, N. Y., Feb. 16, 1855, and graduated from Northwestern University in 1881, taking the degree of bachelor of divinity in 1883. He had begun preaching in Chicago in 1875, and was pastor of the Ravenswood Church until 1884. He was ordained to the Methodist ministry in the following year. He was pastor of various churches in and about Chicago, and became secretary of the Morals Commission of Chicago in 1917. Three times he was a member of the General Conference of the Methodist Episcopal Church, and he was also a member of the Methodist Ecumenical Conference, London. He was at one time president of the Chicago Methodist Social Union, and was a member of various civic and charitable organizations. He wrote: *Catching Men* (1906); and *Spiritual Electrology* (1911).

BRYAN, Charles W. American engineer, died at New Rochelle, N. Y., June 25. He was born at Washington, Mo., May 5, 1863, and in 1884 graduated in civil engineering from Washington University, St. Louis, Mo. After serving as a draftsman and as an engineer in the bridge department of the Missouri Pacific Ry., he became permanently connected with the Edge Moor Bridge Works of Wilmington, Del., being chief engineer of that company until it became part of the American Bridge Company, of which he was chief engineer also. At that time he went to Pittsburgh in charge of contracting for railroad and highway bridges in that district, and in 1901 went to New York as eastern division contracting manager. In February, 1911, he was appointed chief engineer of the American Bridge Company, being actively interested in the design and construction of the Hell Gate Bridge and the Philadelphia-Camden Bridge.

BRYAN TREATIES. See Arbitration, International.

BRYN MAWR COLLEGE. An institution for the higher education of women at Bryn Mawr, Pa.; founded in 1880. The enrollment for the autumn of 1927 totaled 498, of whom 385 were undergraduates, distributed as follows: seniors, 86; juniors, 66; sophomores, 112; and freshmen, 118; 3 were hearers; 20 resident fellows, and 93 graduate students. The teaching staff numbered 67. The productive funds of the college amounted to $6,400,000 in the autumn of 1926, and the income for the year 1925–26 to $963,459. The number of volumes in the library was 116,492. President, Marion Edwards Park, Ph.D., LL.D.

BUBONIC PLAGUE. South Africa was experiencing a plague problem which was the subject of an editorial in *The Lancet* (London) for July 9, 1927. Up to 1899 the disease had never obtained a foothold in the Union of South Africa, but in 1901 an epizoötic occurred among the rats of the Cape Town docks and since that time the plague has been endemic. Recently the South African Institute of Medical Research and the Public Health Department of the Union published exhaustive reports on the past and present aspects of plague. During the period 1916–1920 there were outbreaks of the disease in the midland districts of the Cape which could not be connected with other foci of the disease, nor was the mode of propagation apparent; and it was not until 1921 that certain rodents native to this area were found to act as reservoirs for the dissemination of the disease. Two species of these rodents are the gerbille and the multimammate mouse and later three others were added —the large-eared mouse, striped mouse and ground squirrel. In 1923–24 an extensive epidemic broke out in the Orange Free State, in which 329 people were attacked with a death rate of nearly 60 per cent, about 12 per cent of the victims having the pneumonic form of the disease. The rodents in this area were almost exterminated and in addition to the smaller animals large rodents including hares and also the mongoose were sufferers. It is extremely fortunate that most of the rodents avoid the homes of the farmers and herdsmen, while the familiar house rodents from this or other cause chiefly escape infection. One reason for this immunity was probably to be found in the habits of the fleas, for the species which are parasitic on the wild rodents spare the domestic forms. Carnivora such as the mongoose and suricate contract the disease when they attack the infected rodents, flea transmission being unnecessary to explain their contamination.

BUCKNELL UNIVERSITY. A coeducational Baptist institution of liberal arts at Lewisburg, Pa., founded in 1846 under the name of the University of Lewisburg, but renamed in 1886 in honor of its benefactor, William Bucknell. In the autumn of 1927 the enrollment was 1102, of whom 686 were men and 416 were women. Of the 333 students enrolled in the summer session of 1927, 167 were men and 166 were women. The faculty had 68 members. The productive funds amounted to $1,300,000, and the income for the year to $554,000. A dormitory to accommodate 170 women, and the Ziegler Memorial Infirmary, a gift of Mrs. Ziegler, in memory of Dr. S. Lewis Ziegler of Philadelphia, were completed during the year. The library contained 50,000 volumes. President, Emory W. Hunt, D.D., LL.D., D.C.L.

BUCKWHEAT. The production of buckwheat in the United States in 1927, according to estimates published by the Department of Agriculture, amounted to 16,182,000 bushels on 832,000 acres, the rate per acre being 19.4 bushels. As compared with 1926 this represented an increase of 3,506,000 bushels in yield, 138,000 acres in area, and 1.1 bushels in the rate per acre. On the basis of the average farm price of 83.5 cents per bushel on December 1, the total value of the crop of 1927 was $13,518,000, or $2,355,000 more than the crop of 1926 with a corresponding price of 88.2 cents per bushel. The yields of the leading producing States in 1927 were as follows: Pennsylvania 4,935,000 bushels, New York 4,473,000 bushels, Minnesota 1,764,000 bushels, West Virginia 880,000 bushels, Michigan 689,000 bushels, and Ohio 588,000 bushels. All others of the 23 reporting states produced less than 500,000 bushels. The average yields per acre by states ranged from 13 bushels in Iowa to 26 bushels in Vermont, and the average price per bushel on Dec. 1, 1927, from 64 cents in South Dakota and North Dakota to $1 in North Carolina. Exports of buckwheat from the United States amounted to about 66,000 bushels in each of the years ended June 30, 1926, and 1927, and the imports to 4,033,000 and 4,016,000 pounds respectively.

BUDGET CONTROL, MUNICIPAL, BY STATE. See MUNICIPAL GOVERNMENT.

BUILDING. In 1927 the total volume of construction throughout the United States was estimated at a little over $6,800,000,000, or a loss of 3 per cent from the figures of 1926 which were highest in the history of the United States. According to the statistics of the F. W. Dodge Corporation, the contracts let on new buildings and engineering work in the 37 States east of the Rocky Mountains in 1927 amounted to $6,303,055,100, or a drop of 1 per cent from the record figures of 1926 and an increase of 5 per cent over 1925. At the end of the year there was a drop in the amount of new construction started in December from the record of the previous year.

BUILDING AND LOAN ASSOCIATIONS. See COÖPERATION.

BULGARIA. A constitutional monarchy in the Balkans lying to the south of Rumania and the east of Jugo-Slavia. Capital, Sofia.

AREA AND POPULATION. As a result of the World War, the area of Bulgaria was reduced from 53,305 to 39,814 square miles. The population according to the census of 1926 was 5,483,125 as compared with the actual population, according to the census of 1920, of 4,846,971. The chief cities with their populations, according to the 1926 census are: Sofia, 213,120; Philippopolis, 84,891; Varna, 60,761; Ruschuk, 45,672; Slivno, 29,280; Plevna, 29,058; Stara Zagora, 29,015; Choumen, 25,314; Burgas, 31,363.

EDUCATION. Primary instruction is free and compulsory for children between the ages of seven and 14, and is supported by the state authorities. In 1925 there were 4110 national elementary schools with 13,273 teachers and 416,272 pupils and 1652 private elementary schools with 2608 teachers and 83,014 pupils. Secondary and higher schools are gymnasiums and progymnasiums, and various institutions for special training and instruction of teachers. The state university at Sofia had 287 professors and teachers and 2807 students in 1926. There is also a free (private) university with 42 teachers and 2130 students.

Production. Agriculture is the principal occupation of the people. The land is held in absolute freehold, the greater part of the holdings being under small proprietors (one to six acres). The methods of cultivation are primitive, although in recent years some farm machinery has made its appearance. About two-thirds of the people are engaged in cultivating the 9,182,409 acres of land under crops. Provisional results of the 1926 harvests indicated a smaller yield than for 1925. This poorer showing was attributed in part to damage sustained from the drought and floods during the year. Wheat, the leading cereal, declined in production from 1,363,000 tons in 1925 to 1,124,000 tons in 1926, although the sown acreage was about 19,000 hectares more than during the preceding year. Lower yields were reported for all other cereals, with the exception of corn. The corn yield was placed at 737,000 tons as compared with 715,000 tons in 1925, in spite of a decrease of 25,000 hectares in sown acreage. Tobacco production in 1926 was estimated at 26,450,000 kilos, and was reported to be of good quality. This compares with 45,000,000 kilos in 1925. The smaller crop in 1926 was said to be due to the government's desire to improve the quality of the product. The rose crop was estimated at 6,000,000 kilos, or 10 per cent larger than in 1925, while the attar distilled was placed at 1640 kilos. The accompanying table shows the acreage and yield of the cereal crops in 1926.

Fruit is raised in large quantities especially around Kustendil; the wine production in 1924 was 16,720,000 gallons. Cotton was grown on 5650 acres in 1925 and the yield was 560,000 kilos. Honey and sugar are also produced to some extent. The minerals are rich but considerably underdeveloped. The total coal production in 1925 was 1,219,570 metric tons. Manufacturing is also rather backward, although the government encourages industrial enterprises.

PRODUCTION OF CEREALS IN BULGARIA, 1926 [a]

Cereals	1926 [a] Area Acres	 Yield Tons
Wheat	2,535,208	1,124,000
Rye	426,322	193,500
Meslin	228,722	76,700
Barley	534,261	250,800
Oats	400,387	154,600
Spelt	15,314	5,800
Maize	1,462,240	737,000
Rice	11,609	7,000
Total	5,614,063	2,549,400

[a] Preliminary figures.

Commerce. According to the U. S. Bureau of Foreign and Domestic Commerce, the trade balance for 1926 was again unfavorable, but the excess of imports over exports was considerably less than in 1925. This reduction from 1,648,875,095 to 628,781,731 leva was achieved by decreased imports of textiles and their manufactures, and cereal and grain products. The latter was made possible by a better harvest.

FOREIGN TRADE OF BULGARIA FOR 1925 AND 1926

Commodity	1925 Quantity	 Value Million leva [a]	1926 Quantity	 Value Million leva [a]
IMPORTS				
Textiles and manufactures ....metric tons	17,004	2,727	13,096	2,101
Metals and manufactures ....do...	74,598	945	98,541	1,020
Machines and implements ....do...	14,305	744	15,719	840
Railroad cars, wagons, automobiles, etc. ......number.	823	109	1,835	273
Skins, hides, furs, and manufactures ....metric tons	3,883	358	2,880	248
Mineral oils, gums, etc. ....do...	44,876	193	55,205	234
Wood and manufactures ....do...	89,873	285	55,618	197
Paper and manufactures ....do...	11,650	174	10,528	163
Chemical products ....do...	9,423	116	12,501	158
Colonial goods ....do...	12,751	241	5,243	135
Stones, earth, glass products, etc. ....do...	12,798	133	12,360	134
Tannins, dyes, paints, and varnishes ....do...	4,922	153	4,322	124
Cereals and grain products ....do...	44,733	452	1,810	20
All others ....do...	72,340	661	53,432	599
Total	413,156	7,291	341,255	6,246
EXPORTS				
Tobacco ....metric tons	33,647	2,329	27,463	2,061
Eggs ....do...	11,036	738	11,833	811
Wheat flour ....do...	18,748	223	43,706	488
Wheat ....do...	35,101	280	36,181	283
Corn ....do...	116,427	639	98,618	386
Live animals ....number.	825,273	368	752,141	256
Attar of roses ....kilos..	2,169	89	3,065	208
Skins, hides, furs, and manufactures ....metric tons	1,781	171	1,751	173
Cocoons ....do...	698	209	565	172
Barley ....do...	20,816	105	23,110	111
Beans ....do...	10,714	70	18,701	94
Rye ....do...	840	4	12,804	67
All others ....do...	71,577	417	124,130	507
Total	320,885	5,642	398,862	5,617

[a] The lev had an average exchange value of $0.0073 in 1925 and $0.0072 in 1926.

Germany was the chief country of origin for imports, furnishing 21.9 per cent of the total, followed by Italy with 13.8 per cent, Czechoslovakia with 12 per cent, England with 11.3 per cent, and Austria with 8.7 per cent. Exports were consigned principally to Germany, 19.5 per cent; Greece, 17.4 per cent; Italy, 12 per cent; Austria, 7.6 per cent; and Czechoslovakia, 7.3 per cent. Imports from the United States in 1926 were valued at 85,894,000 leva, as compared with 229,277,000 leva in 1925, when the total was swelled by emergency purchases of cereals. Imports from the United States consist chiefly of machines and implements, mineral ils, gums, metals, and manufactures. Exports o the United States totaled 95,635,000 leva in 926, as against 90,660,000 leva in 1925. The hief items were attar of roses, skins, hides and urs, and copper matte.

FINANCE. Preliminary results of the 1925–26 iscal year showed receipts of 6,355,292,000 leva nd expenditures of 6,444,617,000 leva or a defi-it of 89,325,000 leva. The budget for the fiscal ear 1927–28 shows a slight increase in totals or both receipts and expenditures over the preious year. Receipts for 1927–28 are estimated t 6,993,100,000 leva and expenditures at 6,992,77,000 leva, as compared with 6,924,000,000 eva and 6,924,161,000 leva, respectively, for 926–27. Indirect taxes, which have consistently hown larger returns, are less, while increases re anticipated from direct taxes. Due to genral business stagnation, government revenues uring 1926–27 were expected to be below budget stimates. Under these conditions the larger revnues proposed for 1927–28 appeared to anticiate an improvement in the general business and inancial situation of the country. Extraordinary udgetary credits to supplement the ordinary udget for 1926–27 totaled 169,525,720 leva. hese credits were to be covered by the savings rom the regular 1926–27 budget.

The most important financial event of the ear was the granting of the so-called "refugee oan" to Bulgaria, under the auspices of the eague of Nations. While this loan was not eally an ordinary financial transaction, being esignated for refugee settlement work, it was he first loan obtained abroad since the armisice, and created a more optimistic tone in busiess and financial circles. The granting of this oan, which was estimated to net about £2,250,-00, was made contingent upon a revision of the tatutes of the National Bank of Bulgaria, which ecame effective Jan. 1, 1927. Under the new egulations one of the chief functions of the ank is to maintain a stable currency; it is also o have the exclusive right of issuing bank notes, nd will be subject only to a small degree of conrol by the government. Advances by the bank to he state in the future are limited to urgent eeds, the maximum not to exceed 300,000,000 eva.

COMMUNICATIONS. All railways in Bulgaria re owned and operated by the State under the itle "Bulgarian State Railways" with the exeption of 30 kilometers of Decauville line owned y timber companies. During the fiscal year 925–26, there were in operation 2297 kilometers f broad-gauge line and 429 kilometers of line ess than four feet in gauge. The estimated reeipts from all sources for the fiscal year 1926–27 nd 1927–28, as compared with the actual reeipts for the year 1926–27, are shown in the ollowing table:

Rolling stock in service in 1926 consisted of 406 locomotives, 430 passenger cars, and 6578 freight cars. The average capacity of the latter was about 15 metric tons. Rebuilding of certain lines progressed slowly during 1926, the greatest amount of work being done on the Sofia-Rustchuk line. This consisted chiefly in relaying track and strengthening bridges. A great deal of work was needed to put the State Railways in good condition, but money was lacking for the purpose.

GOVERNMENT. The King is at the head of the government, assisted by a council of ministers nominated by him and a single legislative chamber known as the Sobranje composed of 227 members. In 1927 the King was Boris III, who succeeded to the throne upon the abdication of his father, Oct. 3, 1918. The parties in the Sobranje, elected in 1923, were distributed as follows: Government coalition, 172; Socialists, 29; Agrarians, 18; Communists, 8. The ministry as organized at the beginning of 1926 was as follows: Premier and Minister of Interior, André Liaptcheff; Education, N. Naidenoff; Justice, Dr. Kuleff; Commerce, M. Bobotchevsky; Finance, V. Molloff; Public Works, S. Vassileff; Posts and Railways, K. Georghieff; Foreign Affairs, A. Buroff; Agriculture, D. Christoff; War, General I. Volkoff.

HISTORY. The entire year was one of unusual quiet throughout the entire country and compared most favorably with other post-war years, when Bulgaria was in continual diplomatic hot water with her neighbors, Greece, Jugo-Slavia, and Rumania. The Bulgarian government was accused of terrorism by M. Vandervelde of Belgium at a meeting of the League of Nations, when he suggested amnesties for political prisoners in return for the League's loan of $11,000,000 to help settle the Macedonian refugee problem. At the suggestion of Sir Austen Chamberlain no official action was taken in the matter on the grounds that it was a domestic affair of Bulgaria's and did not come within the purview of the League of Nations.

Towards the close of the year relations with Jugo-Slavia were strained to some extent because of the depredations of the so-called Komitadji, as the Macedonian revolutionaries are termed. In the last few years, in an attempt to embroil the Bulgarian government with its neighbors, they have crossed the border of the countries mentioned above and carried out depredations and then retired to the mountain fastness of Bulgaria from which neither the Governments of Bulgaria or its neighbors have been able to dislodge them. Jugo-Slavia demanded a satisfactory reply from Bulgaria because of the raids. The Belgrade press was open in certain quarters in its charges that Italy was financing the raids with the hopes of stirring up a war

REVENUES OF BULGARIAN STATE RAILWAYS

Item	*1926–27* *Estimated* *Leva*	 *Actual* *Leva*	*1927–28* *Estimated* *Leva*
assenger, freight, and parcels service	1,050,000,000	809,297,835	1,125,000,000
ents of property and equipment	15,000,000	10,612,698	5,000,000
ne-half of 1 per cent of employees' salaries retained for medical assistance	2,000,000	1,135,697	2,000,000
ort and light charges	35,000,000	26,778,508	35,000,000
rivate orders placed in railway workshops	....	....	7,000,000
Total	1,102,000,000	847,806,738	1,174,000,000

in the Balkans from which she might emerge with increased political prestige and territorial aggrandizement. France and Great Britain, as stated under Albania (q.v.) were loath to open up a discussion of the entire Balkan question for fear of the consequences. On October 11, the Bulgarian government gave what was apparently a satisfactory reply to the Jugo-Slav note and established martial law in the infested districts, established courts-martial to try suspects, and sent troops to prevent bands from crossing in either direction. Despite these precautions, further raids were reported in the fall, and, as one observer remarked, there were more causes for actual war than had motivated Balkan states on previous occasions. The Belgrade government down to the close of the year acted with a forbearance and evident desire to promote peace which should be lauded everywhere.

BULLARD, William Hannum Grubb. American naval officer and radio executive, died November 24, at Washington, D. C. He was born at Media, Pa., Dec. 6, 1866. After graduating from the U. S. Naval Academy in 1886, he served through the various grades until he reached the rank of rear admiral in 1919. He served in the Spanish-American War as a lieutenant on the cruiser *Columbia.* From 1905 to 1907 he was navigating officer of the battleship *Maine,* and then was placed in charge of organizing the work in electrical engineering at the Naval Academy. After another year at sea, in command of the cruiser *San Francisco,* in 1911 he was brought ashore to take charge of the naval radio communications work, then just becoming an important branch of the service. In 1912 he became superintendent of the naval radio service, and acting in that capacity he seized in 1915 the important wireless station at Sayville, N. Y., after President Wilson had declared that its further use by the Atlantic Communication Company would constitute a violation of the neutrality of the United States. In the following year Bullard, then a captain, commanded the battleship *Arkansas;* when the United States entered the war in 1917 that vessel was first attached to the British Grand Fleet, and was subsequently ordered to the eastern Mediterranean. The end of the war found Bullard there, and he received the formal surrender of the Austro-Hungarian navy.

Later he served on the inter-allied commission at Malta, and also went to Paris to attend the inter-allied conference on radio. After the signing of the peace treaties he was ordered to the command of the Yangtze patrol, in China. He retired from the navy in 1922 and went to live at his home at Media, Pa. In March, 1927, Admiral Bullard was called from retirement to serve as chairman of the United States Radio Commission. He had been instrumental in the organization of the Radio Corporation of America, and served on the board of directors of the corporation. He was connected actively with the development of radio for more than twenty-five years. He probably contributed more than any other man to the success of radio in the United States, and was called sometimes "the Father of American radio." At the time of his death he represented the United States at the International Radio-Telegraphic Conference in Washington.

Admiral Bullard received the Distinguished Service Medal for his work in the World War, and was a Commander of the Legion of Honor of France and a Knight of the order of Polonia Restituta, of Poland.

BURCHARD, Anson Wood. American engineer, died in New York, January 22. He was born in Hoosick Falls, N. Y., Apr. 21, 1865, and was graduated from Stevens Institute of Technology in 1885. In 1902 he became connected with the General Electric Company, and for a time was active in the consolidation of several of its manufacturing units and in the development of various public utility companies. During the World War he served as assistant director of munitions, and in 1922 became vice chairman of the board of directors of the General Electric Company, of which for many years he had been vice president. He was chairman of the board of directors of the International Electric Company, in general charge of the export business of the corporation. In October, 1926, he was elected president of the American Arbitration Association. He was treasurer of Stevens Institute of Technology and a director in many public utility corporations, besides being a member of leading engineering societies in the United States and Great Britain.

BURGOYNE, Surrender of. See Celebrations.

BURMA. The largest and most easterly province of British India; since 1923, a governor's province under the Government of India Act of 1919. Area, 262,732 square miles; population (1921), 13,212,192. Rangoon, with a population of 341,962, is the capital of Lower Burma; and Mandalay, with a population of 148,917, is the capital of Upper Burma. Politically Burma is a province of British India, but geographically and socially it may be regarded as a separate unit having little in common with India proper. Being almost entirely agricultural, it does not share the rest of the country's industrial ideas. Such industries as Burma has are those essential for the preparation of its products for the market—rice mills for husking rice, sawmills for squaring its teak, refineries for oil, and cotton gins. Rice mills alone make up about three-fifths of its total industrial activity. The principal crop is rice, two-thirds of Burma's agricultural area being given to its culture. In poor years most of the crop is consumed locally, leaving but little surplus for export.

The government is administered by a governor and legislative council. Governor in 1927, Sir Spencer Harcourt Butler.

BURN, The Very Rev. Andrew Ewbank. British clergyman and author, dean of Salisbury, died at London, November 28. He was born at Bareilly, India, Jan. 17, 1864, and was educated at Clifton College, at Charterhouse and at Trinity College, Cambridge University. He was ordained in 1887 to the curacy of St. Cuthbert's, Gateshead, and after serving as curate and rector of various churches was collated to a prebendal stall in Lichfield cathedral in 1903. He took his D.D. degree at Trinity in 1904, and in 1906–07 was select preacher at Oxford University. From 1918 to 1920 he was chaplain to the King; in the latter year he became dean of Salisbury. Dean Burn was active in social work, and he was deeply interested in the origin and history of creeds. He wrote: *The Athanasian Creed and Its Early Commentaries; An Introduction to the Creeds and the Te Deum; Niceta of Remesiana, His Life and Works; The*

Crown of Thorns; The Council of Nicæa; The Te Deum and Its Author.

BURNHAM, Clara Louise. American author, died at Bailey Island, Casco Bay, Me., June 21. She was born at Newton, Mass., the daughter of Dr. George F. Root, a composer. Moving to Chicago in her childhood, she married when very young. She wrote many stories and poems for magazines and the texts for her father's cantatas. Her novels include: *Dr. Latimer* (1893); *The Right Princess* (1902); *Jewel* (1903); *Jewel's Story Book* (1904); *The Opened Shutters* (1906); *The Leaven of Love* (1908); *The Inner Flame* (1912); *The Right Track* (1914); *Instead of the Thorn* (1916); *Hearts Haven* (1918); *In Apple Blossom Time* (1919); *The Keynote* (1921); *The Queen of Farrandale* (1923); and *The Lavarous* (1925). She was successful in depicting New England characters. She was a Christian Scientist, and most of her books are permeated with the principles of that faith.

BURTON RESOLUTIONS. See Arbitration, International; Peace and Peace Movements.

BURY, John Bagnell. British historian and regius professor of modern history at Cambridge University, died at Rome, Italy, June 1. He was born in County Monaghan, Ireland, Oct. 16, 1861, and after receiving his early education at home and in a local school entered Trinity College, Dublin, attaining the highest honors in classics and receiving the degree of B.A. in 1882, becoming fellow of Trinity College in 1885. Having studied under Professor Mahaffy, he devoted himself to late Roman history, and in 1889 published *A History of the Later Roman Empire from Arcadius to Irene, 375–800* A.D. Previously he had collaborated with Professor Mahaffy in a school edition of Euripides' *Hippolytus,* and later he prepared the notes and renderings of Pindar's *Nemean Odes* (1890) and *Isthmian Odes* (1892). In 1893 he was appointed professor of modern history in the University of Dublin, combining this chair with that of regius professor of Greek, 1898–1902, and serving until the death of Lord Acton in 1902, when he was called to the professorship of modern history in Cambridge University. He resigned his fellowship in Trinity College, Dublin, in that year, and in the following year was elected fellow of King's College, Cambridge. He was also an honorary fellow of Oriel College, Oxford, and fellow of the British Academy and corresponding member of many European and American learned societies. He received the honorary degree of Litt.D. from the Universities of Oxford, Durham and Dublin, and that of LL.D. from Edinburgh, Glasgow and Aberdeen. His last important work was in two volumes entitled *A History of the Later Roman Empire from the Death of Theodosius I to the Death of Justinian* (1923), which was a continuation of his earlier history. Professor Bury was considered one of the most learned and accomplished scholars of his age, and in addition to the works mentioned his writings include: *Student's History of the Roman Empire from Augustus to Marcus Aurelius* (1893); *History of Greece to Death of Alexander the Great* (1900) (library edition, 2 vols. 1902); *The Science of History* (inaugural lecture) (1903); *Life of St. Patrick and His Place in History* (1905); *The Ancient Greek Historians* (Harvard Lectures) (1908); *The Constitution of the Later Roman Empire* (Creighton Memorial Lecture) (1909); *Imperial Administration in the Ninth Century* (1911) *Romances of Chivalry on Greek Soil* (Romane Lecture) (1911); *History of the Eastern Roman Empire, 802–867* (1912); *History of Freedom of Thought* (1913); and *The Idea of Progress* (1920).

BUSH, Benjamin Franklin. American railway president, died at St. Louis, Mo., July 29 He was born at Wellsboro, Pa., July 5, 1860 and was educated at public schools and the State Normal School at Mansfield, Pa. He began railway service on the Northern Pacific R. R. in 1882 as a rodman, and five years later became division engineer of the Union Pacific R. R in Idaho and Oregon, serving until 1889, when he became chief engineer and general superintendent of the Oregon Improvement Company at Seattle, Wash. From 1896 to 1903 he was genera manager of the Northwestern Improvement Company at Roslyn, Wash., and in 1903 became fuel agent of the Missouri Pacific R. R. with headquarters at St. Louis. In 1907 he was elected president of the Western Maryland Ry., serving as its receiver, 1908–10, and again as president, 1910–11. On May 1, 1911, he was elected president of the Missouri Pacific R. R., serving until 1915, when for two years he acted as receiver, becoming president again in 1917, and holding this position until his retirement. He became chairman of the board of directors which position he relinquished in June, 1924. He also acted as president of the Denver & Ric Grande R. R. from January, 1912, to November, 1915, and as president of the Western Pacific Ry. from July, 1913, to November, 1915. From June, 1918, to March, 1920, he was regional director of the southwestern region of the United States Railroad Administration. He was a member of the board of directors of the American Railway Association, and in 1900 served as consulting engineer to the United States Geological Survey. In 1907 he was appointed by President Roosevelt a member of the advisory board on fuels and structural materials. After his retirement from active railroad management he was engaged in banking and in farming near St. Louis.

BUSINESS REVIEW. The history of business in the United States during 1927 was characterized by recession and loss of ground in nearly all branches. This was apparently not due to any generally adverse condition but was the outcome of a combination of special factors. Business in 1926 had been conducted on an uncommonly high level of volume with exceptionally heavy production in basic lines and consequently large turnover. This was in some measure due to consumptive demand which had never been fully satisfied, since the period of retardation which had come on during the war as, e.g., in commercial and domestic building. In part the great upward movement which culminated in 1926 was the outgrowth of the new methods of distribution and financing; e.g. the instalment plan of selling. The net result was to advance general turnover to a high level which could not be maintained and consequently underwent reaction in 1927. The accompanying table is useful as reflecting the situation of industrial production during the past few years and consequently as illustrating the downward movement observable during 1927, especially during the second half of the twelve months.

INDUSTRIAL PRODUCTION

[*Index numbers, adjusted for seasonal variations. 1923–1925 average = 100*]

Month	*Total*					
	1922	*1923*	*1924*	*1925*	*1926*	*1927*
January	73	100	100	105	106	107
February	76	100	102	105	107	109
March	80	103	100	104	107	111
April	77	107	95	103	107	108
May	81	107	89	103	106	111
June	86	105	85	102	107	108
July	86	103	83	103	107	106
August	84	102	89	103	111	107
September	88	100	94	102	112	105
October	94	99	94	105	111	108
November	97	97	97	106	108	99
December	100	96	101	108	105	99
Annual index	85	101	95	104	108	...

What was thus true of production was also true of distribution for, as things stood in the United States at the end of the year, there was comparatively little tendency to the accumulation or hoarding of goods. The year opened with relatively small stocks of most classes of raw materials on hand, and it closed with very little increase of such stocks. The movement of production therefore may be taken as corresponding roughly to the movement of business in the broader sense of the term. Retail trade indeed showed a reasonably steady volume of sales throughout the year, but it should of course be remembered that retail conditions are subject to something of a "lag" as compared with wholesaling or production. Still, toward the end of the year and particularly during the autumn, there was a tendency among selling indexes to decline, not only below the indexes of earlier months, but also below corresponding indexes of 1926, thus reflecting the same general tendencies toward loss of ground which had already been noted in production.

Commodity Prices. The situation at the beginning of 1927 as regards commodity prices practically reflected a further recession as compared with former years, and, as 1927 advanced, this tendency to decline continued to show itself, although very moderately, up to early autumn. During the autumn months, a slight upward tendency began to develop, with the result that prices at the close of the year had practically recovered to the same point that they had reached at the close of 1926 with an average figure of about 98 (taking the average of 1926 as 100). The month of December showed another slight downward trend. Actual index numbers may be presented as follows (using U. S. Bureau of Labor returns):

MOVEMENT OF WHOLESALE PRICES

1926		*1927*	
January	104	January	97
February	102	February	96
March	100	March	95
April	100	April	94
May	101	May	94
June	101	June	94
July	100	July	94
August	99	August	95
September	100	September	97
October	99	October	97
November	98	November	97
December	98	December	97

Analyses of the price situation indicated that the most important factor in bringing about the stronger tendency of prices during the closing months of the year was to be found in the changing position of agricultural commodities. As is well known, the farmer had ever since the post-war slump of 1921, suffered from a relatively low price level for the principal products of the farm, the average agricultural price index being 20 to 45 points below that for manufactures.

During the year 1927, various influences tended to bring about a better adjustment of supply and demand in agriculture, with the result that agricultural prices were decidedly "marked up." This mark-up offset some tendencies to decline that had been exhibited in a few manufacturing lines, and operated to raise the whole level of prices very slightly, as just stated. Taking the average of all commodities, the price level for the year was thus characterized by rather exceptional stability, with corresponding advance of certainty in business.

Manufacturing. Under the influence of the conditions already described, manufacturing, generally speaking, tended to be distinctly less active than in 1926. This was indicated by an increasing percentage of unoccupied plant capacity, particularly in basic industries like steel and iron which made a rather poor showing for the year. Automobile production was also unsatisfactory, partly due to the saturated condition of demand, but particularly to the fact that competitive conditions had compelled the largeest single producer to suspend operations very largely while he was engaged in reorganizing his plant and in developing a new "model." As a result, total output of automobiles was only about 3,530,000 as compared with 5,500,000 during 1926. (See Automobiles.)

Relative inactivity was also to be noted in a number of other branches of business, especially in the textile trades, while a good many factors in the food industries found conditions difficult and buying rather reduced in activity. The outcome of these conditions was naturally a lessened demand for labor with broader unemployment. Indexes of payrolls showed steady decline as compared with 1926, differences running from 3 to 10 points or more (on a scale of 100), while numbers employed tended to shrink during the year and were steadily below figures for 1926 by 3 or 4 points.

Agriculture. Agriculture enjoyed an unusually satisfactory year. The total value of 50 principal crops as estimated by the U. S. Department of Agriculture was about $8,500,000,000, an increase of about $635,000,000 over 1926. (See Agriculture.)

The farm values of principal crops were officially given as follows:

Corn	$2,014,725,000
Wheat, winter	645,901,000
Wheat, spring	329,603,000
Oats	587,216,000
Rye	49,945,000
Cotton	1,253,999,000

Special attention in the agricultural history of 1927 should be given to the cotton crop which, with a yield of about 13,000,000 bales or 5,000,000 less than in 1926, proved on the whole to be a good deal more remunerative to the planter than in former years. The price which had ruled at the beginning of January around thirteen cents for fair, middling upland in the New York market was twenty cents at the close of the year and had at times been very materially higher. (See COTTON.) Wheat, which at one time had seemed to be suffering from unfavorable weather, finally furnished a total yield of 319,000,000 bu. of spring and 552,000,000 bu. of winter wheat, a respective increase and decrease as compared with 1926 of 114,000,000 bushels and 74,000,000 bushels while the price was steady. (See WHEAT.)

The improvement in the agricultural situation was an important factor in business outlook and was generally so accepted by members of the business community. Specifically it had the result of improving the demand for goods in many parts of the country and it also tended to bring about a better banking situation, since it enabled the banks which were carrying large quantities of maturing farmers' obligations to obtain settlement and also to collect, in some instances, back payments upon obligations which had been incurred in times past by farm borrowers who had been prevented from settling on account of unfavorable crop conditions. During the autumn of 1927, a good deal of liquidation of this kind took place and reports from the farming regions were to the effect that there had been unmistakable improvement in the general financial situation.

GENERAL BUSINESS. Owing to the declining tendency of prices, the recession in demand already referred to, the partially saturated condition of the buying public in many lines and a number of other relatively minor factors, general business was distinctly less satisfactory during 1927 than it had been during the preceding year. This state of affairs was reflected in comparatively unsatisfactory earnings. A compilation of earnings, made by one of the Federal Reserve banks, showed that for 177 representative corporations there had been a falling off of earnings in the course of the year amounting to about 10 per cent as compared with 1926. This falling off was obviously not uniform or regular but was found most decidedly in the case of some branches of business which had suffered most seriously in turnover. Among automobile companies, for example, figures for the first half of the year showed that about three quarters of all had fallen materially behind 1926, although a few outstanding concerns included in the remaining 25 per cent had made large profits which went far toward offsetting the loss, if the industry as a whole be taken as the basis of comparison. A decidedly narrower margin of profit, however, existed in nearly all branches of business and was so distinctly marked that, at the annual meeting of the National Association of Manufacturers, it was officially declared that fully half of the producing establishments of the country were making no net profits.

In other cases, while profits were by no means wiped out, they were quite considerably reduced. This was conspicuously the case with the railroads which reported very decided recessions of earnings, these becoming evident during the second half year. They were, in large measure, a reflection of reduced movements of freight, partly the outgrowth of slackening in the building industry, partly due to lessened movements of coal, resulting from mild weather and from changes in practice with regard to the use of fuel. They were also, however, influenced by very substantial increase in expenses due to the fact that organized labor had for some years past been insisting upon more and more liberal treatment, the increases in wages being progressively transferred from one department to another of the transportation system, so that as a result roads throughout the country found their costs enormously increased. For the year as a whole therefore, the effect was to reduce net revenues of Class I railroads from $1,233,048,000 to $1,085,485,000, a decrease of about 12 per cent. This falling off in earning power was interesting, not merely because of its relationship to railroad credit and railroad prosperity, but also because of its bearing upon, and reflection of, general business conditions. (See RAILWAYS.)

BUSINESS FAILURES. The narrowing margin of profit in business and the fact that total turnover had decidedly fallen naturally led to increase in liability to failure on the part of concerns that were comparatively weak. The effect of this situation was seen in a generally high failure record, but more especially in the fact that uncommonly heavy mortality was noted among the smaller enterprises, many of which were relatively close to the margin of profitableness. As noted in the article on banks and banking, there was decided decline in bank failures, but this improvement constituted one of the few exceptions to the general rule of increased failure liability already referred to. The general showing of business failures for the year may be set forth as follows:

TOTAL NUMBER OF COMMERCIAL FAILURES IN THE UNITED STATES AND DOMINION OF CANADA, WITH ASSETS AND LIABILITIES, 1926–1927, AS REPORTED TO BRADSTREET'S"

	Number of failures		*Assets*		*Liabilities*	
	1927	*1926*	*1927*	*1926*	*1927*	*1926*
New England states	2,269	2,279	$17,406,839	$17,746,521	$44,506,681	$40,832,503
Middle states	4,434	4,452	69,142,147	47,165,494	139,755,915	109,980,954
Western states	4,488	4,166	75,163,054	61,728,112	124,045,295	103,646,990
Northwestern states	1,911	2,111	47,491,272	89,865,489	79,926,044	143,363,312
Southern states	5,178	4,937	151,295,848	146,212,071	218,202,858	224,820,630
Far-western states	1,990	2,079	24,599,743	16,992,131	47,845,574	32,583,931
Totals, United States	20,265	20,024	385,098,398	379,709,818	654,282,367	655,228,320
N. Y. C., Man. and Bronx only	1,096	1,141	9,943,705	9,763,306	27,170,685	32,433,462
Canada and Newfoundland	2,016	2,106	10,740,978	11,868,750	26,078,301	28,422,743

BUSSES, MOTOR. See AUTOMOBILES.

BUTLER, JOSEPH GREEN, JR. American steel manufacturer and philanthropist, died December 19 at Youngstown, Ohio. He was born at Temperance Furnace, Pa., in 1840, and was a schoolmate of the late President William McKinley at Niles, Ohio. In later years he testified to his friendship for McKinley by originating the McKinley Birthplace Memorial Association, which built a $300,000 memorial to McKinley at Niles, and by acting as its president. Mr. Butler gave $500,000 for the Butler Art Institute at

Youngstown, and endowed the institute. He began his business career as a clerk in a store at Niles. He entered the steel industry in 1866, building a furnace for the Girard Iron Company at Girard, Ohio. Among the numerous companies with which he was connected were the Briar Hill Coal and Iron Company, the Portage Silica Company, the Ohio Steel Company and the Youngstown Sheet and Tube Company. He was a member of the United States industrial commission which visited France in 1916. Mr. Butler published: *Life of McKinley* (1900); *First Trip Across the Continent* (1904); *First Trip Abroad* (1906); *Presidents I have Seen and Known* (1910); *A Journey Through France in War-Time* (1917); *Fifty Years of Iron and Steel* (1917); *History of Youngstown and the Mahoning Valley; Recollections of Men and Events* (an autobiography).

BUTLER, NATHANIEL. American educator and former president of Colby College, died at Chicago, Ill., March 3. He was born at Eastport, Me., May 22, 1853, and after graduating from Colby College with the degree of A.B. in 1873 became a teacher, engaging in educational work in various institutions around Chicago. He was ordained to the Baptist ministry in 1884, and was professor of rhetoric and English literature in the University of Chicago, 1884–86. He was professor of Latin, 1886–89, and professor of English language and literature, 1889–92, in the University of Illinois. He was acting director of the University Extension Division, 1893–94, and in the latter year went to the University of Chicago as associate professor of English literature and director of the University Extension Division. In 1895 he went to Colby College as president, returning to the University of Chicago in 1901, becoming professor of education and director of the coöperative work. In 1905 he was made dean of the College of Education, serving until 1909, and from 1916 to 1923 he was dean of University College. In 1924 he became assistant to the president of the University of Chicago, a position he held at the time of his death. He was a delegate of the University of Chicago to the World's Congress on University Extension at London in 1894, and received the honorary degrees of D.D., 1895, and LL.D., 1903, from Colby College. He wrote extensively on topics connected with university extension, and was the author of: *Bellum Helveticum,* a Latin textbook which reached its fifth edition in 1900.

BUTTER. See DAIRYING.

CAHNITE. See MINERALOGY.

CALIFORNIA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 3,426,861. The estimated population on July 1, 1927, was 4,433,000. The capital is Sacramento.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	1,796,000	5,832,000[a]	$65,946,000
	1926	1,849,000	5,149,000[a]	62,541,000
Barley	1927	994,000	27,885,000	25,422,000
	1926	1,080,000	32,400,000	18,792,000
Cotton	1927	128,000	94,000[b]	9,870,000
	1926	162,000	131,000[b]	9,170,000
Wheat, winter	1927	812,000	13,642,000	16,098,000
	1926	653,000	12,015,000	15,620,000
Rice	1927	160,000	8,960,000	10,304,000
	1926	149,000	7,986,000	10,482,000
Potatoes	1927	52,000	7,956,000	7,558,000
	1926	43,000	6,928,000	9,138,000
Sweet potatoes	1927	12,000	1,080,000	1,242,000
	1926	12,000	1,164,000	1,280,000
Corn	1927	77,000	2,464,000	2,661,000
	1926	77,000	2,426,000	2,572,000
Oranges	1927	......	22,540,000[c]	67,620,000
	1926	......	28,167,000[c]	86,473,000
Grapes	1927	......	2,264,000[a]	56,600,000
	1926	......	2,114,000[a]	52,850,000
Peaches	1927	......	20,500,000	10,675,000
	1926	......	22,542,000	21,189,000
Dry beans	1927	296,000	4,825,000	18,028,000
	1926	305,000	5,734,000	17,202,000

[a] tons, [b] bales, [c] boxes.

MINERAL PRODUCTION. California, which ranked third among the States in 1925 in total value of yearly mineral production, and first as a producer of petroleum, about maintained its petroleum output in 1926. Of petroleum it produced in 1926 224,117,000 barrels, as against 232,492,000 barrels in 1925. The product had a higher total value in 1926, attaining $355,000,000 as against $330,610,000 in 1925. Natural gas was produced in 1925, the latest year of available record, in the quantity of 187,789,000 M cubic feet; in 1924, of 189,692,000 M cubic feet. Its total value, for 1925, was $32,587,000, and for 1924, $35,949,000. Of gasoline from natural gas, the quantity produced was in 1925, 303,180,000 gallons and in 1924, 232,579,000 gallons; in value, $32,743,000 for 1925 and $22,690,000 for 1924. Production of Portland cement in 1926 was 13,842,483 barrels in 1926; in 1925, 13,089,140 barrels. Cement shipments, in value, were $25,299,245 in 1926; in 1925, $26,159,531. Clay products, in 1925, the latest year of available report, attained a value of $23,324,844; in 1924, of $20,994,732. Sand and gravel were produced to a quantity of 14,077,849 short tons in 1925; in 1924, of 11,132,930 tons; in value, $8,752,528 in 1925 and in 1924 $6,653,536.

Production of metals as a whole showed a decrease for 1926 as against 1925, of about 14 per cent as measured by value. The decrease was 9 per cent in the case of gold, 40 per cent for silver and for copper 30 per cent. Lead output value increased 13 per cent and zinc 76 per cent. Of gold there were produced in 1926 576,798 fine ounces, of a value of $11,923,841; 252,924 fine ounces came from placer workings and 323,874 from lode mines. Silver production was in 1926 2,022,640 fine ounces, as against 3,054,416 in 1925. It had a value of $1,262,015 for 1926 and for 1925, of $2,119,765. Copper production in 1926 was 33,466,299 pounds; in 1925, 46,864,913 pounds. Its value was $4,685,282 in 1926 and in 1925, $6,654,818. The State produced 8,093,513 pounds of lead in 1926, as against 6,566,000 pounds in 1925; in value, $647,481 for 1926 and $571,259 in 1925. Zinc production rose to 20,433,887 pounds for 1926, from 11,489,237 pounds for 1925. The production had a value of $1,532,542 for 1926 and for 1925 of $873,182. Copper mines in Shasta County were closed in 1926, as was the California Rand Silver property in San Bernardino County.

The value of the gold, silver, copper, lead and zinc produced in 1927, according to the estimate of the U. S. Bureau of Mines, was $16,768,500, a decrease of $3,282,301, or 16 per cent, from 1926. The yield of gold decreased apparently 2 per cent, to 566,600 fine ounces, valued at $11,711,800; that of silver decreased 30 per cent in value, to 1,568,300 ounces valued at $889,200;

that of copper, 26 per cent in value, to 26,749,900 pounds, valued at $3,477,500; that of lead, 73 per cent in value to 2,541,000 pounds, valued at $172,000; and that of zinc, 66 per cent in value, to 8,247,800 pounds, valued at $518,000.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $61,529,767; their rate per capita was $14.48. They included $22,320,202 apportioned for education. Totals not included above, of $1,688,535 for public service enterprises, $4,533,372 for interest payments and $16,114,205 for permanent improvement outlays brought the aggregate of State payments to $83,865,879. Of this, $16,163,872 was for highways, $6,373,785 being for maintenance and $9,790,087 for construction. Revenue receipts were $91,948,242; or per capita, $21.65. Of their total, property and special taxes yielded 18.5 per cent, attaining a per capita rate of $4. Earnings of the departments and compensation paid the State for officials' services supplied 7.1 per cent of revenue. The sale of licenses, chiefly on incorporated companies and on motor vehicles, and a tax on gasoline sales, supplied 58.3 per cent. Net State indebtedness on June 30, 1926, was $100,389,995, or $23.63 per capita. There was in 1926 no direct State property tax levy, and no valuation of taxable property for the entire State was consequently reported.

TRANSPORTATION. The total mileage of railway lines Dec. 31, 1926, was 8277.17. During 1927 three companies reported 32.73 miles of track built, of which 23.01 was first track and 9.72 miles second track.

EDUCATION. A decision of the State Supreme Court with regard to school finances was characterized by State Director A. R. Clifton as placing in the hands of school authorities rather than of supervisors or others the determination of amounts to be used for school purposes. By legislation comprehensive studies in secondary education were authorized; funds were provided for relief and education of crippled children and of children of defective speech.

A registry of minors was taken in October, 1927, but the returns were not available at the end of the year. For the school year 1926–27 the total enrollment was 1,204,705, of whom 716,746 were in common schools and 414,958 in high schools. The total expenditure for education amounted to $140,244,026.22, and included sums expended for kindergartens, elementary schools, high schools, building sites and buildings. The salaries paid to teachers averaged $1729 in elementary schools and $2377 in secondary schools.

CHARITIES AND CORRECTIONS. The State Department of Social Welfare was created in 1927 to replace the State Board of Charities and Corrections and the Bureau of Children's Welfare, and to form a single agency for the control of all activities of the welfare type. The department has at its head an appointed director, serving at the pleasure of the Governor, and holding membership in the Governor's Council. The Department had the function of inspection, with related powers, over 60 county jails, 6 State hospitals, 62 county hospitals, 2 homes for the feeble minded, an industrial home for the blind, 29 detention homes, 2 State prisons, 2 schools for boys, a school for girls; also 56 orphanages, 29 day nurseries, 11 preventoria, 10 private schools for defectives, 10 rescue homes, 4000 children's boarding homes, 27 homes for the aged, 2 child placing agencies and 9 homes for convalescents. It conducted children's aid in the cases of orphans, half orphans, foundlings, abandoned children and children of the incapacitated, to the number of some 6000, affecting about 14,500 children. The population of the chief types of institutions in 1926 was: State prisons, about 5000; State hospitals, 12,477; homes for the feeble minded, 2,038; homes for the aged, 1,700. According to the U. S. Department of Commerce, 1,789 were admitted to the State prisons and reformatories in 1926. A rebellion of convicts at the Folsom prison was subdued November 25 after the loss of 11 lives and the intervention of the National Guard troops.

LEGISLATION. Convening in January, the forty-seventh State Legislature adjourned April 29. It passed a budget bill carrying $193,770,466 to cover expenditures during the ensuing two-year period. A series of laws enacted provided extensive reorganization of the administrative bodies of the State government. A Governor's Council was created, consisting of nine members, their number including the Directors of Finance, Public Works, Public Health, Natural Resources, Industrial Relations, State Institutions, Education and Public Welfare. The intent of the law was to meet difficulties encountered in the application of the system of government by commissions instituted some fifteen years before, by centralizing control of the commissions. The law provided that the Council hold monthly meetings and that the members report department activities. Two new departments, those of Natural Resources and of Finance, were erected by statute. In order to meet a deficiency in revenue, caused by court decisions adverse to the constitutionality of previously enacted tax laws to yield estimated receipts of $12,000,000 in the biennium, emergency tax legislation was enacted. The 7 per cent solvent credits act of 1925 was repealed and securities previously benefiting by that act were again subjected to 100 per cent assessment. The general corporation franchise tax was raised to 1.8 per cent.

A system of laws for the better repression of crime, recommended by the State Crime Commission, was in large part passed. In particular the Habitual Criminal act provided that those convicted of third felonies should be declared habitual criminals and should receive life sentences of imprisonment, subject, however, to release on parole at the end of not less than twelve years of prison service; sentence of death being retained as provided in earlier statutes. Other measures dealt with criminals carrying firearms, regulated the parole system, and rendered more difficult the recourse to insanity pleas on the part of criminal defendants.

In order to provide some $120,000,000 for highway construction in the following twelve years, a law was passed to raise the gasoline tax to three cents a gallon. It was provided that main State highways, designated as primary roads, should receive 75 per cent of the highway appropriation, and that of such highways 2,345 miles should be built in the northern part of the State and 1,941 in the southern portion. A reapportionment law was enacted, providing representation in the lower house of the State Legislature on a strict population basis, and allowing one State Senator to each county. The State community property law was modified by a measure to recognize the wife's right in such property as a "present and equal" right.

The Legislature ordered a registration of all minors in the State between the ages of three and eighteen years. A bill was passed requiring each of the counties to prepare budgets through county auditors, to be submitted to county supervisors. A Tax Commission was created, with the function of studying the tax needs and resources of the State and reporting to the 1929 Legislature. A Metropolitan Water District act, desired by Los Angeles as an agency for participation in water development of the Colorado River, and permitting four or more municipalities to join for water development purposes, became a law.

Political and Other Events. The State Supreme Court rendered in January a decision in favor of the rights of riparian owners along streams, as against the hydro-electric interests. It held that the riparian owners had the right to have the stream flow past their land in its usual course, the water being conceived as essential to the property; process of eminent domain was indicated as required in cases where other use of the water was esteemed essential. Recent great increase of the use of water for irrigation and for city consumption, as well as for power development had brought the State within appreciable closeness to the stage where it must require all its normal surface water flow, and on this account the decision bore vitally on the contention of agricultural and other interests for portions of the supply. The United States Supreme Court sustained, May 15, the State's criminal syndicalism law under which Miss Charlotte Anita Whitney, an Oakland social worker, faced a prison sentence for participation in a radical meeting in 1919. Miss Whitney was pardoned by the Governor June 20.

Governor C. C. Young and his administration took office January 4. He laid down among his policies at his inaugural address State administrative consolidation, criminal code revision, a coördinated plan of water conservation, and extension of the prison road camp system. Governor Young appointed a committee in October to confer with producers on means to avoid waste of the natural-gas resources of the State. The State maintained negotiations with Arizona and the other Colorado River States, looking to the securing for California of the terms of the Swing-Johnson bill or like water advantages from that river, for the greater part of the year, but failed to reach any agreement. According to report of October 19, government engineers of the Reclamation Service had obtained estimates of the cost of a barrier to exclude salt waters from the lower San Joaquin and Sacramento Rivers, running from $38,900,000 to $97,000,000. The project was intended to increase the fresh water supply for agriculture in the region. Among business developments in the State was the remarkable growth of the Bank of Italy, which on October 12 announced the decision to increase its capital stock and that of an auxiliary by $90,000,000 to a total of $200,000,000. Earth tremors in parts of southern California occurred November 4, and were slight except near Santa Maria. The Spanish mission at Santa Barbara was restored during the year and was consecrated by the Roman Catholic Church, December 3-5.

In San Francisco Mayor Rolph was reëlected, November 8, to a fifth term of four years, defeating James E. Power, who had Republican support. An ordinance carrying $9,380,000 for the completion of highways within the city was ratified by popular vote. Efforts were made on behalf of San Francisco to secure from the U. S. War Department consent to the construction of a bridge across San Francisco Bay north of Hunter's Point. The State Supreme Court on November 12 sustained the power of the city board of education to make its own budget without interference from the Board of Supervisors, within constitutional limits, the latter board being accordingly compelled to place an additional tax levy of 14 cents on each assessed $100.

The City of Los Angeles had difficulties with dwellers in the Owens Valley, who claimed indemnification to business interests there on account of the withdrawal of water formerly used in the valley for irrigation purposes. The Los Angeles aqueduct was dynamited on several occasions in May, although guarded by an armed force. In October an arrangement was reached by which the city water commissioners were to coöperate with the population of the valley by furnishing work there.

Officers. Governor, C. C. Young; Lieutenant-Governor, Buron R. Fitts; Secretary of State, Frank C. Jordan; Treasurer, Charles G. Johnson; Comptroller, Ray L. Riley; Attorney-General, U. S. Webb; Adjutant-General, Richard R. Mittelstaedt; Surveyor-General, W. S. Kingsbury; Superintendent of Public Instruction, William J. Cooper; Librarian, Milton J. Ferguson; Legislative Counsel, Fred B. Wood; President of the Railroad Commission, E. W. Decoto; Chairman of the Industrial Accident Commission, Will J. French; Commissioner of Insurance, Charles R. Detrick; Chairman of the Highway Commission, Ralph W. Bull; Director of the Department of Agriculture, G. H. Hecke; Labor Commissioner, Walter G. Mathewson.

Judiciary. Supreme Court: Chief Justice, Louis W. Myers; Associate Justices, William H. Langdon, John W. Preston, William H. Waste, Emmet Seawell, John E. Richards, John W. Shenk. See City Planning.

CALIFORNIA, University of. A coeducational institution of higher education at Berkeley, Cal., with branches at Los Angeles, San Francisco, Davis, Riverside, La Jolla, and Mount Hamilton, founded in 1868. The number of full-time resident students in courses leading to degrees, on Nov. 1, 1927, was 17,003, of whom 8,780 were women and 8,223 were men. The extension division had, in 1926-27, an enrollment of 35,685. The enrollment for the summer school of 1927 was 10,623 students. At the beginning of the autumn term there were approximately 1500 members on the teaching staff. The endowment funds for 1926-27 amounted to $11,799,060.67, and the income for the year to $475,599.20 divided as follows: For current use, $410,643.46; addition to funds, $46,557.38; payment on trust funds, $26,398.36. The library contained 950,000 volumes. During the year final plans were made for moving the university campus at Los Angeles from its old site to a new one purchased by surrounding communities, and construction was started on a central group of four buildings for which the people of the

State voted $3,000,000 in bonds. At the Davis campus an agricultural engineering building was completed at a cost of $140,000, and an animal science building was started, to cost approximately $300,000. In San Francisco a building was purchased and altered for use as an extension centre at a cost of $197,000. On the main campus at Berkeley, plans were completed for a $1,750,000 International House, similar to the one already built in New York, to be financed by John D. Rockefeller, Jr.; a site was chosen for another recent gift, Bowles Dormitory, to be built at a cost of $350,000; final arrangements were made for the construction of a life science building at a cost of $1,750,000 to house 13 departments; a new Hearst Memorial Gymnasium, costing more than $1,000,000 was dedicated; and an architect was selected to design a new 90 bed student infirmary to be paid for out of a $3,000,000 bond issue voted by the people. President, William Wallace Campbell, Sc.D., LL.D.

CAMBODIA. A French protectorate of Indo-China lying to the north of Cochin-China, west of Annam, and south of Laos and Siam. Area, 66,743 square miles; population at the census of 1926, 2,535,178, of whom 1901 were Europeans (excluding the military forces). Pnom-Penh, with a population of 81,712, is the capital, and chief town. The soil is very fertile but only a comparatively small area is under cultivation. The chief product is rice, its annual export amounting to about 250,000 tons. The other products include cotton, pepper, kapok, salt fish, hides, cattle, coffee, sugar, and iron. The imports in 1924 were valued at 32,036,186 francs and the exports at 13,753,000 francs. The budget for 1926 balanced at 10,754,074 piastres. Nominal king, Sisowath (q.v.), who succeeded in 1904, and who died Aug. 17, 1927. Cambodia is one of the five component states of French Indo-China (q.v.).

CAMBRIDGE, Lieutenant-Colonel the Marquis of. Aid to King George V. and brother of Queen Mary of England, died at Shrewsbury, England, October 24. He was born at Kensington Palace, London, Aug. 13, 1868, the eldest son of the Duke of Teck and Princess Mary Adelaide, and a cousin of King George V. He was educated at Wellington and at the Royal Military College, Sandhurst, joining the Seventeenth Lancers in 1888, and was a captain of the First Life Guards in 1895, becoming a major in 1906 and lieutenant colonel in 1910. During the South African War, 1899–1900, he was transport officer of the Household Cavalry regiment, and from 1904 to 1909 he was military attaché at Vienna. In 1914 he participated in the War with the British Expeditionary Force, and was military secretary in the War Office in 1915. In the early part of 1916 he was military secretary at general headquarters. For his services during the South African War he was brevetted Major, and received the Queen's Medal with clasps, and in the World War his honors included that of the Commander of the Legion of Honor and the Grand Cordon of Leopold. He received many other honors, being created a G. C. B. in 1911, a G.C.V.O. in 1901, K.C.V.O. in 1897, Earl of Eltham in 1917, and Viscount Northallerton in 1917. After 1914 he was governor and constable of Windsor Castle.

CAMEROON or CAMEROONS. See Kamerun.

CAMPANARI, käm′pä-nä′rē, Giuseppe. Italian dramatic baritone, died at Milan, May 31. He was born at Venice, Nov. 17, 1858, and began his career as a cellist in the orchestra at La Scala, in Milan. From 1884 to 1893 he was one of the cellists of the Boston Symphony Orchestra. He made his début as a singer as Mephistopheles in *Faust*, with the Emma Juch Opera Company in New York, in 1893. Then he joined the Hinrichs Opera Company in Philadelphia, and from 1895 to 1898 was a member of the Metropolitan Opera House company. After that time he devoted himself to the concert stage and to teaching in New York. He returned to Italy in 1926.

CAMP FIRE GIRLS. An organization primarily for the adolescent girl. Its purpose is to "seek beauty, give service, pursue knowledge, be trustworthy, hold on to health, glorify work and be happy." The programme evolved to carry out these aims was planned to take care of the out-of-school time of girls, and practically every wholesome activity which would naturally engage the interest of the young girl is included. These activities are grouped under the seven crafts which form the basis of the system of honor and awards which is used: Home craft, health craft, hand craft, camp craft, nature lore, business craft, and patriotism and citizenship. Distributed among these crafts are about seven hundred honors which the girls may earn as steps toward the winning of the three progressive ranks. The Camp Fire Honor System, which is based on the theory that if a thing is worth doing it is worth doing with one's whole heart, makes use of symbolism and ceremony and ritual. Each girl upon joining Camp Fire selects a name for herself which expresses some ambition or ideal. The three ranks of Wood Gatherer, typifying loyalty to organization and group, Fire Maker, the ideal of wider loyalty to Mankind and God, and Torch Bearer, which is the highest rank, the desire to pass on undimmed to others that light which has been given to her, symbolize the taking on of certain responsibilities and carrying out certain desires.

The outstanding activities of the year were: A campaign to aid in the planting of trees, which included the planting of over 200,000 trees by the Camp Fire Girls, the study and protection of all plant life, and the sponsoring of contests for tree photographs, tree poems and tree stories; the securing of sites for new camps for girls and the erection of buildings, at St. Paul, Minnesota, and Los Angeles, California, and the beginning of work on camp sites at Butte, Montana, Detroit and Grand Rapids, Michigan, in addition to the camps already in operation; and the special emphasis placed on training of leaders, as a result of the increasing demand for leaders from year to year, in universities, colleges, and normal schools, in Camp Fire Summer Camps and by Camp Fire executives and members of the field staff or guardians' association. The national officers were: Acting president, Miss Florence Hughes; vice presidents, Mr. Joseph E. Raycroft, Mrs. Henrietta Baker Low; treasurer, Dr. Myron T. Scudder; secretary and national executive, Mr. Lester F. Scott. The headquarters are at 31 East 17th Street, New York City.

CANAANITES. See Archæology.

CANADA. A dominion of the British Empire in North America, bounded on the north by the

Arctic Ocean, on the south by the United States, and on the east and west by the Atlantic and Pacific Oceans, respectively. Capital, Ottawa.

Area and Population. The total area is placed at 3,797,123 square miles, of which 3,654,200 is land area and 142,923 water area. It consists of nine provinces, each with its own parliament and administration, and two territories, viz., the Northwest Territories and Yukon Territory, each under a commissioner, assisted by a council. According to the census of 1921, the total population was 8,788,483, as compared with 7,206,643 in 1911.

The accompanying table from the Canada *Year Book* for 1926 shows the areas of the provinces, etc., with the population at recent censuses:

Province	*Land area sq. miles*	*Water area sq. miles*	*Total area sq. miles*	*Population, 1901*	*Population, 1911*	*Population, 1921*
Prince Edward Island	2,184	.....	2,184	103,259	93,728	88,615
Nova Scotia	21,068	360	21,428	459,574	492,338	523,837
New Brunswick	27,911	74	27,985	331,120	351,889	387,876
Quebec	690,865	15,969	706,834	1,648,898	2,005,776	2,301,199
Ontario	365,880	41,382	407,262	2,182,947	2,527,292	2,933,662
Manitoba	231,926	19,906	251,832	255,211	461,394	610,118
British Columbia	243,381	8,319	251,700	178,657	392,480	524,582
Alberta	252,925	2,360	255,285	73,022	374,295	588,454
Saskatchewan	353,416	2,439	355,855	91,279	492,432	757,510
Yukon	206,427	649	207,076	27,219	8,512	4,157
Northwest Territories	546,522 218,460 493,225	7,500 9,700 34,265	554,032 228,160 527,490	20,129	6,507	7,988
Royal Canadian Navy	....	......	....	......	.....	485
Total	3,654,200	142,923	3,797,123	5,371,315	7,206,643	8,788,483

The principal cities with their populations in 1921 were: Montreal, 618,506; Toronto, 521,893; Winnipeg, 179,087; Vancouver, 117,217; Hamilton, 114,151; Ottawa, 107,843; Quebec, 95,193; Calgary, 63,305; London, 60,959; Edmonton, 58,821; Halifax, 58,372; St. John, N. B., 47,166; Victoria, 38,727; Windsor, 38,591.

The accompanying table from the *Canada Year Book* for 1926 shows the vital statistics of population for recent years (the registration area of Canada excludes Quebec and the Territories):

	Years	*Births*	*Birth rate per 1,000*	*Marriages*	*Rate per 1,000*	*Deaths*	*Rate per 1,000*	*Excess of births over deaths*	*Rate natural increase per 1,000 population*
Canada (registration area)	1921	168,979	26.4	51,073	8.0	67,722	10.6	101,257	15.8
	1922	164,194	25.1	47,811	7.3	69,028	10.5	95,166	14.5
	1923	156,897	23.7	49,102	7.4	70,182	10.6	86,834	13.1
	1924	157,595	23.4	47,538	7.1	66,197	9.8	91,398	13.6
	1925	154,509	22 6	47,151	6.9	66,419	9.7	88.090	12.9
Quebec[a]	1921	88,749	37 6	18,659	7.9	33,433	14.1	55,316	23.4
	1922	88,377	35.1	16,609	6.5	33,459	13.3	54,918	21.8
	1923	83,579	32.2	17,361	6.3	35,148	13.6	48,431	18.6
	1924	86,930	35.1	17,591	7.1	32,356	13.0	54,574	22.0
Canada (exclusive of the Territories) .	1921	257,728	29.3	69,732	8.0	101,155	11.6	156,573	17.8
	1922	252,571	27.8	64,420	7.1	102,487	11.3	150,084	16.5
	1923	240,476	26.1	66,463	7.2	105,880	11.4	135,265	14.7
	1924	244,525	26.5	65,129	7.1	98,553	10.7	145,972	15.8

[a] Rates for Quebec have been calculated on provincial estimates of population.

The number of immigrants who arrived in Canada during the calendar year 1926, as reported by the Dominion Minister of Immigration and Colonization, was 135,984. The principal nationalities represented include:

British-English	24,541
United States of America	20,944
Scotch	18,861
German	10,720
Ruthenian	9,468
Irish	9,049
Polish	5,350
Magyar	5,182
Finnish	4,721
Jewish	4,441
Slovak	4,010
Norwegian	2,607
Italian	2,539
Swedish	2,324
Jugo-Slav	2,191
Belgian	1,842
Dutch	1,643
Scandinavian-Danish	1,467
Welsh	1,368
Croatian	1,135
Russian	1,074

The occupational classification was given as: Farming, 76,141; labor, 8341; mechanics, 9481; trading, 5267; mining, 1324; female domestics, 13,043; other classes, 22,387. The British Empire Settlement scheme, from its inception to Jan. 31, 1927, cost the Dominion government $1,146,887; $474,000 of this was contributed for passage loans and $667,000 for passage grants. Other expenses not recoverable account for the remainder.

The population of the Dominion of June 1, 1926, was officially estimated to have been 9,389,300, an apparent increase of approximately 600,000 over the 1921 census. The only parts of the Dominion for which gains were not calculated were the province of Prince Edward Island and the Yukon Territory. According to municipal statistics for 1925, the population of some of the principal Canadian cities in that year was as follows: Montreal, 907,500; Toronto, 542,189; Winnipeg, 195,148; Vancouver, 128,350; Quebec, 124,341; Hamilton, 122,238; and Ottawa, 118,088.

The religious denominations in the order of their numerical importance in 1921 were: Roman Catholics, Presbyterians, Anglicans, Methodists, Baptists, Lutherans, the Greek Church, Jews, Mennonites, and Congregationalists. Of these 3,389,636 were Roman Catholics, 1,409,407 Presbyterians, 1,407,994 Anglicans, and 1,159,458 Methodists. (See CANADA, UNITED CHURCH OF.)

EDUCATION. The control of education in the Dominion is directly in the hands of the provinces. For the latest available statistics on education in each province, consult the article on that province. The latest available statistics for Canada as a whole are shown in the accompanying table, an extract from the Survey of Education in Canada by the Dominion Bureau of Statistics for 1925.

Provinces	*Year ended*	*Schools* [a]	*Teachers*	*Pupils*	*Expenditure Dollars*
Ontario	Dec. 31, 1924 Elem. June 30, 1925 Sec.	7,450	17,558	671,311	45,030,685
Quebec	June 30, 1924	7,797	18,699	488,322	27,917,738
Nova Scotia	July 31, 1924	1,769	3,331	112,352	3,704,939
New Brunswick	June 30, 1925	1,472	2,484	80,145	3,348,373
Manitoba	June 30, 1925	1,991	4,028	145,834	8,547,445
British Columbia	June 30, 1925	759	3,294	97,954	7,869,088
P. E. Island	June 30, 1925	472	616	17,427	452,699
Alberta	June 30, 1925	3,361	4,864	145,892	9,730,091
Saskatchewan	June 30, 1925	6,254	7,520	97,954	14,432,176
Total		31,325	62,894	1,965,832	121,034,234

[a] Where possible the number of school-houses is given, and elsewhere the number of school districts with schools in operation.

Higher education in Canada is carried on in 23 universities and 82 colleges, including 21 classical colleges in Quebec. Of the universities six are state-controlled (New Brunswick, Toronto, Manitoba, Saskatchewan, Alberta, and British Columbia); four others are undenominational (Dalhousie, McGill, Queen's and Western); while the remainder are denominational. The 23 universities had 3864 professors and 49,843 students in 1924–25. Some of the denominational universities include: King's, Acadia, and St. Francis Xavier in Nova Scotia; Mt. Allison in New Brunswick; Laval and Bishop's College in Quebec; and McMaster and Ottawa in Ontario.

AGRICULTURE, ETC. The estimated value of Canada's principal field crops harvested during the calendar year 1927 was $1,141,367,000. The increase of $35,839,000 over 1926 indicated an augmented purchasing power of nearly $60 each for approximately 600,000 families on Canadian farms. The estimated value of the wheat crop was $452,602,000 (increase, $10,381,000); oats, $231,295,000 (increase, $47,197,000); barley, $63,668,000 (increase, $11,609,000); rye, $12,668,500 (increase $3,238,000); other grains, 47,752,000 (increase, $1,319,500); flaxseed, $7,379,000 (decrease, $2,309,000); potatoes, $56,279,000 (decrease, $12,925,000); hay, clover, and alfalfa, $201,215,000 (increase, $2,563,000); root and fodder crops, $68,508,000 (decrease, $25,235,000). The average price of wheat per bushel was seven cents less in 1927 than in 1926 owing to the larger crop and the poor quality of much of the grain, but the prices of oats, barley and rye were all higher. Stocks of wheat in the terminal elevators at the head of the lakes on Dec. 9, 1927, were 13,232,000 bushels as compared with 21,994,000 bushels on the same date in 1926. For the latest statistics on the area planted under the various crops, see preceding YEAR BOOK.

The *dairying* industry of Canada is carried on most extensively in Ontario and Quebec, although there are dairy factories in all of the provinces. In 1925 there were 1240 creameries, 1390 cheese factories, 358 combined butter and cheese factories, and 24 condensed milk factories in the Dominion. The total value of all their products was $141,406,623 as compared with $122,027,181 in the preceding year. The production of creamery butter was 180,069,215 pounds valued at $67,007,704; of factory cheese 178,350,346 pounds, valued at $36,781,343; the value of condensed products was $9,844,613; and of sundry products, $27,772,963. The estimated total consumption of butter, cheese and eggs for 1926 was 267,961,643 pounds, 36,804,476 pounds, and 264,783,655 dozen respectively. Per capita consumption was 28.54 pounds, 3.92 pounds and 28.20 dozen respectively.

Fruit farming is of considerable importance, the chief products being apples, although peaches, pears, plums, cherries, and small fruit are grown in abundance. According to the Canada *Year Book* for 1926 the production of the more important fruits in 1925 with the value was as follows: Apples, 2,943,060 barrels, $16,709,440; pears, 156,422 bushels, $332,735; plums and prunes, 79,562 bushels, $154,288; peaches, 201,840 bushels, $547,772; cherries, 114,925 bushels, $409,210; strawberries, 8,070,000 quarts, $1,458,950; grapes, 24,000,000 pounds, $1,680,000.

In the same year 27,815 acres were under *tobacco* (chiefly in Ontario and Quebec), and the total production was 29,255,000 pounds valued at $7,002,400.

The *livestock* census for June, 1926, was as follows:

LIVESTOCK IN CANADA, JUNE, 1926

Horses	3,558,849
Milch cows	3,951,835
Other cattle	5,208,815
Sheep	2,877,363
Swine	4,470,771
Poultry	49,641,472

The wool-clip of Canada for 1926 was estimated at 17,180,270 pounds valued at $3,780,000.

FISHERIES. In addition to an immense salt-water fishing area Canada has 220,000 square miles of fresh water abundantly stocked with many species of excellent food fishes. In 1925 the total value of the fisheries of Canada was $47,926,802. The principal kinds of fish marketed were: Salmon, $15,760,630; cod, $6,232,821; lobsters, $5,552,977; halibut, $4,185,391; herring, $3,117,841; whitefish, $1,974,871; haddock, $1,171,555; trout, $1,097,728; pickerel, $1,056,169; smelts, $1,035,504; and sardines, $1,017,206. In 1925–26 the exports were valued at $36,792,663 (dry-salted codfish, $5,246,462; canned lobsters, $4,037,259; fresh lobsters, $1,255,876; canned salmon, $10,467,680). The number of persons employed in 1925 was 73,855, including those in shore work and canneries. The number of factories and canneries in operation in 1925 was 852. It was reported in August, 1927, that the federal government would appoint a commission to investigate all phases of the fishing industry in the Maritime Provinces. The main object of the commission was to enlarge the market and insure inshore fisherman better prices for the catch.

Forests. The most important forest areas are in Northern Ontario, Quebec, and British Columbia. The total area of land covered by forests is officially estimated at 1,227,000 square miles. Of this less than 40 per cent is covered with commercial timber. The exported forest products (wood and wood products, unmanufactured) amounted to $115,530,322 in 1925–26. In the same year the value of manufactured wood and paper exports was $163,144,638. The greater part of the exports go to the United States, which took more than 85 per cent of the exportable surplus in 1925–26. The president of the newly-formed Canadian Forest Products Publicity Association reported in December, 1927, that the unsold stocks of lumber in the hands of the manufacturers was lighter than for the past seven years. It was proposed to continue the 1927 volume of production in 1928. The Association was reported to have planned to spend in the next four years $2,500,000 on industrial research and a campaign to offset the competition of materials sold as substitutes for lumber.

Fur Industry. The continued growth of the *fur-farming* industry of Canada was shown by the statistics for the year 1926. The number of farms in operation in that year was 2702, compared with 2283 in 1925, while the total value of property (comprising land and buildings and fur-bearing animals) was $14,888,705, an increase over the preceding year of $1,647,460 or 12 per cent. Of the 2702 farms, 2517 were fox farms, thus indicating the chief source of revenue. The number of pelts sold in 1926 was 16,643 with a value of $1,218,111 as compared with 11,293, valued at $781,383 in 1925. The total amount received by the farmers from the sale of live fur-bearing animals and pelts in 1926 was $3,494,775, a decrease from the preceding year of $183,878 or 5 per cent.

Mineral Production. According to the official estimates compiled by the Dominion Bureau of Statistics and published on Dec. 29, 1927, a new high record for mineral production in Canada was set in 1927, when the value of the output reached $241,773,000, marking a gain of $1,335,877 over the previous year's record total of $240,437,123. New output records for all time were established in 1927 in gold, copper, lead, zinc, cement, gypsum and lime and in the value of natural gas and petroleum. Increased production, in comparison with the totals for 1926, was noted in the outputs of arsenic, cobalt, copper, gold, lead, nickel, platinum metals, zinc, coal, natural gas, petroleum, gypsum, pyrites, quartz, clay products, cement, lime, stone, sand and gravel.

Gold production amounted to 1,825,421 fine ounces, valued at $37,731,080, as compared with the previous record value set in 1926 of $36,263,110. Silver production, at 22,210,936 fine ounces, showed a slight advance over the 22,171,294 fine ounces produced in 1926, but the value dropped to $12,488,000, as compared with $13,894,531 in 1926. Nickel production from the Sudbury district increased to 66,435,799 pounds valued at $15,105,361. Copper, mostly from the treatment of the nickel-copper ores mined near Sudbury and from the copper-gold ores of British Columbia and Quebec, reached an output of 140,223,717 pounds in 1927. British Columbia mines yielded 91,910,274 pounds; Ontario, 45,652,721 pounds, and Quebec, 2,660,722 pounds. Lead output increased to a new record at 308,742,826 pounds, worth $16,456,877, and zinc rose to 160,108,800 pounds. Fuels showed a general advance. Production values totaled $70,660,900 for coal, gas and petroleum in 1927, as against $68,743,933 in 1926. The Dominion government has granted permission by Order-in-Council for the exportation of blister copper to be shipped from the Flin Flon mine in Northern Manitoba until facilities have been established in Canada for the final treatment of the metal. The mining company has been exempted until 1947 from the payment of royalties, which are 30 cents per hundredweight on copper, ten cents per hundredweight on zinc, 37½ cents per ounce on gold and 15 mills per ounce on silver.

In October, 1927, The U. S. Bureau of Foreign and Domestic Commerce reported that in 1926 Canada had the largest production of unmanufactured asbestos ever recorded. Practically all the producing asbestos mines are located in the eastern townships of Quebec, the production of that province for the year being 279,389 tons, valued at $10,095,487. This represents an increase of 2.2 per cent in tonnage and 13.8 per cent in value over the production of the preceding year. The larger increase in value was accounted for in part by the more effective control of output exercised by the merged companies known as the Asbestos Corporation, the largest producer in the district. (See table, page 151.)

Manufacturing. The census of Canadian manufactures for 1925, made known in December, 1927, showed that 22,331 individual establishments (increase, 7/10 of 1 per cent) reported a total capital investment of $3,808,309,981 (increase, 7.61 per cent); 544,225 persons employed (increase 7 per cent); salaries, $143,056,516 (increase, 2.47 per cent); wages, $452,958,655 (increase, 7.78 per cent); cost of materials, $1,587,665,408 (increase, 10.37 per cent), and value of products, $1,360,879,907 (increase, 8.29 per cent). Average salaries increased by ⅜ of 1 per cent and average wages decreased by 1/10 of 1 per cent. Canada's ten leading manufacturing industries in 1925 in the order of their production value were pulp and paper, flour and grist-mill products, slaughtering and meat packing, saw-mills, butter and cheese, automobiles, electric light and power, rubber goods, cotton yarn and cloth, and sugar refineries.

Power equipment of the manufacturing industries in 1925, aggregated 5,083,107 horse power, including 4,012,756 horse power generated by hydraulic turbines or water wheels, 992,916 horse power by steam engines and turbines, and 77,435 by internal combustion engines. The net increase of the total was 18 per cent over 1924. The value of manufactured products available for consumption in 1925 was $2,927,553,393, of which domestic production, minus exports,

MINERAL PRODUCTION OF CANADA, 1926 AND 1927
[*Official estimates for 1927, with comparative figures for 1926*]

		1926		*1927*	
		Quantity	*Value*	*Quantity*	*Value*
Metallics:					
Gold	fine ounces	1,754,228	$36,263,110	1,825,241	$37,731,080
Silver	do.	22,371,924	13,894,531	22,210,936	12,488,000
Nickel	pounds	65,714,294	14,374,163	66,435,799	15,105,361
Copper	do.	133,094,942	17,490,300	140,223,717	17,326,807
Lead	do.	283,801,265	19,240,661	308,742,826	16,456,877
Zinc	do.	149,938,105	11,110,413	160,108,800	9,985,900
Cobalt and platinum metals		....	2,699,799	....	2,979,324
Other metals		....	164,604	....	164,751
Total		....	115,237,581	....	112,238,100
Non-metallics—fuels:					
Coal	tons	16,478,131	59,875,094	16,722,126	60,258,900
Natural gas	M. cubic feet	19,208,209	7,557,174	21,910,000	8,819,000
Petroleum, crude	barrels	364,444	1,311,665	495,000	1,583,000
Total		....	68,743,933	....	70,660,900
Other non-metallics:					
Asbestos	tons	279,403	10,099,428	272,923	10,425,539
Feldspar	do.	35,951	310,238	31,000	271,000
Gypsum	do.	883,728	2,770,813	890,000	2,850,000
Mica	do.	2,545	229,204	3,000	250,000
Quartz	do.	232,082	553,161	250,000	490,000
Salt	do.	262,547	1,480,149	256,000	1,500,000
Talc and soapstone	do.	15,767	217,195	15,000	218,000
Other non-metallics		....	836,028	....	869,461
Total		....	16,496,211	....	16,874,000
Total		....	85,240,144	....	87,534,900
Clay products and other structural materials:					
Clay products (bricks, tiles, sewer pipe, pottery, etc.)		....	10,357,328	....	10,450,000
Cement	barrels	8,707,021	18,013,283	9,976,005	14,658,000
Lime	bushels	11,825,736	3,781,484	....	3,970,000
Stone, sand, and gravel, etc.		....	12,807,308	....	12,922,000
Total		....	39,959,398	....	42,000,000
Grand Total		....	240,437,123	....	241,778,000

comprised 77 per cent, and imports represented 23 per cent.

COMMERCE. On Nov. 28, 1927, *Commerce Reports* of the U. S. Bureau of Foreign and Domestic Commerce published some statistics in connection with a census of trading establishments in Canada. Reports from 66,814 wholesale and retail firms in Canada were received by the Dominion Bureau of Statistics in connection with this census. A large number of very small trading units, not included in the returns, are of value only as an indication of the extent of the activities of the more important concerns of the Dominion. The census, which pertains to the year 1923, covers 60,181 retail stores, 3782 wholesale firms, and 2851 companies having both wholesale and retail departments. The total number under single ownership is 49,833; operated by joint-stock companies, 9493; operated by partnerships, 7488.

The aggregate capital invested was shown by inventory as $1,580,123,723, including: Retailers, $914,990,830; wholesalers, $476,559,544; and combined wholesalers and retailers, $188,573,349. Working capital, including cash on hand and in banks, merchandise on hand and accounts due, comprised $612,333,521 for the retail stores; $380,777,833 for the wholesale establishments; and $129,383,160 for the firms doing both wholesale and retail business. The average capital investment in retail stores was $15,204; in wholesale, $126,007; and in wholesale and retail, $66,143.

In the total and average purchases and sales of merchandise, as shown in the following table, it is explained that the high average for retail purchases and sales is partly due to the inclusion in the totals of 11,115 firms conducting general and departmental stores, of which 71 firms reported sales amounting to $1,000,000 or over.

Item	*Retail*	*Wholesale*	*Wholesale and retail*
Total purchases	$1,225,016,362	$812,139,031	$283,922,904
Average purchases	20,855	214,737	99,587
Total sales	1,642,103,468	1,021,920,931	366,638,786
Average sales	27,286	270,206	128,600

The total employees of the reporting firms numbered 168,392 males and 73,468 females, who received $261,040,558 in salaries and wages. The average wage in retail stores was $965; in wholesale, $1521; and in wholesale and retail, $1216. The average number of employees was 2.5 in retail establishments, 15.2 in wholesale, and 9.8 in wholesale-retail.

The census covers 24,176 establishments in Ontario, 17,753 in Quebec, 5423 in Saskatchewan, 4648 in British Columbia, 4247 in Alberta, 4215 in Manitoba, 3424 in Nova Scotia, 2528 in New Brunswick, and 400 in Prince Edward Island. Retail business was most profitable in British Columbia, Manitoba, New Brunswick, and Ontario, on the basis of trade per dollar of capital invested; wholesale business yielded the largest returns in Prince Edward Island, British Columbia, New Brunswick, Nova Scotia, and Ontario; and combined wholesale and retail business was most remunerative in Ontario and Quebec. The total returns show that, in the Dominion as a whole, retailers averaged $1.80

worth of trade for each dollar invested; wholesalers, $2.13; and wholesalers-retailers, $1.94.

The 27 cities with a population of 20,000 and over had 37 per cent of the retail stores and did 53 per cent of the retail business; had 74 per cent of the wholesale establishments and made 86 per cent of the sales; had 48 per cent of the wholesale and retail stores and made 65½ per cent of the sales.

In considering the foregoing figures it should be remembered that merchandising channels in Canada have changed considerably since 1923, owing to the rapid growth of large departmental stores and mail-order houses, the increase in the number of chain stores, and the tendency to form buying groups of wholesalers and retailers. These trends have reduced the number of independent stores. Estimates of the aggregate number of retailers in Canada in 1927 varied from 120,000 to 150,000, and it was evident that the returns from the 60,181 retail stores included in the census were quite inadequate to afford a complete picture of the operations of Canadian retailers. The figures relating to the business of wholesale concerns and combined wholesale and retail companies are believed to be much more representative.

According to the condensed preliminary report of the trade of Canada for 1927, the foreign trade of Canada during the year 1926–27 was on the whole satisfactory. The year was marked by a steady improvement in practically every phase of the industrial and commercial activities of the country. The more rapid flow of capital into the basic industries during the past year was especially noteworthy. These factors indicate that the Dominion had successfully passed through the post-war liquidation period, with favorable prospects for still greater expansion. Canada's export trade from 1921 to 1925 expanded more rapidly than her import trade and as a result there was a steadily increasing favorable balance of trade. During 1926–27, however, exports show a decrease of $61,000,000, while imports, due to the Dominion's increased buying power, increased $103,600,000 thus reducing by the totals of these amounts the favorable trade balance, which amounted to $401,400,000 in 1926, to $236,700,000 in 1927.

Foreign Trade. The foreign trade of Canada for the fiscal year ended Mar. 31, 1927, amounted to $2,298,465,647, compared with a similar trade in 1926 of $2,256,028,869 and in 1925 of $1,878,294,180, the increase over 1926 amounting to $42,436,778 or 1.9 per cent, and over 1925 to $420,171,467 or 22.3 per cent. Imports showed an improvement over the years 1926 and 1925, while exports showed a decline compared with 1926, but an increase over 1925. In 1927 Canada's import trade was valued at $1,030,892,505, as compared with $927,328,732 in 1926, and $796,932,537 in 1924, the increase over 1926 amounting to $103,563,773 or 11.1 per cent, and over 1925 to $233,959,968 or 29.3 per cent, while export trade in 1927 (domestic and foreign combined) was valued at $1,267,573,142, compared with $1,328,700,137 in 1926, and $1,081,361,643 in 1925; the decrease compared with 1926 amounting to $61,126,995 or 4.6 per cent, whereas the increase compared with 1925 amounted to $186,211,499 or 17.2 per cent. During the past three fiscal years the exports from Canada, distinguishing domestic from foreign, were:

Fiscal years	*Canadian exports*	*Foreign exports*	*Total exports*
1925.....	$1,069,067,353	$12,294,290	$1,081,361,643
1926....	1,315,355,791	13,344,346	1,328,700,137
1927.....	1,252,157,506	15,415,636	1,267,573,142

The domestic exports of Canada for 1927 show a decrease compared with similar exports in 1926 of $63,198,285 or 4.8 per cent, but an increase over 1925 of $183,090,153, or 17.1 per cent. The United States had a population of 75,000,000 before the total foreign trade of that country was as large as that of Canada to-day.

Increase in Imports, 1926–1927.—The increase in imports of $103,563,773 in 1927 over 1926 was due to gains in each of the main groups, except "fibres and textiles," which shows a slight decrease. The increase in the agricultural and vegetable products group was $9,680,690 (under this group alcoholic beverages increased $4,058,242; sugar and its products $3,892,363; corn $3,108,914; fruits $2,983,574; vegetable oils $2,112,807; seeds $1,407,216; green coffee $573,167 and vegetables $556,533; while crude rubber decreased $9,793,835); the animal products group increased $4,028,577 (the chief increases under this group were: furs $2,704,616; unmanufactured leather $1,063,526; manufactured leather $654,845; fish $472,910; and eggs $340,357; while meats decreased $556,239 and lard $308,870); the fibres and textiles group decreased $1,777,900; while the wood and paper group increased $7,559,202 (the principal items under this group to show increases were: unmanufactured wood, $2,630,417; paper $1,995,844; books and printed matter $1,592,217; and manufactured wood, $1,380,724); the iron and its products group increased $48,232,685 (the chief increases occurred in automobiles $11,287,853; machinery $9,050,005; automobile parts $7,225,352; rolling mill products $6,111,570; farm implements $5,609,638; and engines and boilers $2,060,595); the non-ferrous metals group increased $5,054,857 (the chief increases were: aluminum $1,538,093; electric apparatus $916,190; clocks and watches $796,533; tin in blocks $680,541; and brass $620,076); while the non-metallic group increased $17,750,767 (the principal increases under this group were: crude petroleum $6,357,000; coal $6,008,842; refined petroleum $1,739,322; glass and glassware $1,340,550 and sulphur $977,733). The chemicals and allied products group increased $3,440,439, the miscellaneous group increased $8,994,456.

Decrease in Exports, 1926–1927.—The total decrease in the exports of Canadian produce, 1927 compared with 1926, amounted to $63,198,285. Six of the main groups show decreases and three increases. The following groups show decreases: Agricultural and vegetable products, animal products, fibres and textiles, iron and its products, non-ferrous metals, and chemical products, while the following show increases: Wood and paper, non-metallic minerals and miscellaneous commodities. The agricultural and vegetable products group decreased $31,064,510 (the chief decreases under this group were: Oats $15,638,938; wheat $11,269,448; flaxseed $7,511,185; and refined sugar $4,864,688; while alcoholic beverages increased $3,630,276 and barley $2,692,913); the animal products group decreased $23,683,828; (under this group cheese shows a decrease of $8,762,408; meats $7,703,-

228; cattle $6,502,422; and butter $5,421,536; while raw furs show an increase of $3,087,339); the fibres and textiles group decreased $1,274,483, while the wood and paper group increased $5,445,307 (under this group printing paper shows an increase of $14,292,314; and unmanufactured wood a decrease of $7,674,892). The iron and its products group shows a decrease of $450,253; the non-ferrous metals group a decrease of $16,837,073 (under this group raw gold shows a decrease of $19,113,752, while zinc shows an increase of $2,611,555); the non-metallic group increased $3,940,993 (the chief items to show increases were: Coal $3,103,287; crude petroleum $820,558, and raw asbestos $693,794; while cement shows a decrease of $1,127,418); the chemical products group decreased $923,375 (the exports of fertilizers under this group decreased $786,029); while the miscellaneous group increased $1,648,937 (under this group films increased $1,055,418, and musical instruments $760,288).

The most notable decrease in Canadian exports occurred in the item "Gold-bearing quartz, nuggets, etc." which, from 1926 to 1927, decreased from $25,968,094 to $6,854,342 or $19,113,752. The decrease in the exports was not due to a falling off in the production of gold in Canada, (the production during the calendar year 1925 was valued at $35,880,000 and in 1926 at $35,749,000) but to the fact that in the calendar year 1926 the Royal Mint, Ottawa, purchased about 78 per cent of the Canadian output, while in 1925 it purchased only about 7 per cent.

Trade with the United States.—The trade of Canada with the United States for the fiscal year ended Mar. 31, 1927, amounted to $1,167,039,699, as compared with trade in 1926 of $1,095,671,872, the increase amounting to $71,367,827 or 6.5 per cent. In 1927 the imports from the United States amounted to $687,707,719, as compared with an import trade in 1926 of $609,719,637, representing an increase of $77,988,082 or 12.8 per cent, while exports to the United States in 1927 totalled $479,331,980, as compared with $485,952,235 in 1926, the decrease during the year amounting to $6,620,255, or 1.3 per cent. In 1927 the domestic exports were $466,419,539 and in 1926 $474,987,367, while the foreign exports in 1927 amounted to $12,912,441 and in 1926 to $10,964,868. The domestic exports show a decrease of $8,567,828 and foreign exports an increase of $1,947,573. The increase in the imports from 1926 to 1927, amounting to $77,988,082, was principally due to increased imports of iron and steel ($48,600,000), non-metallic minerals ($21,300,000), miscellaneous commodities ($6,900,000), wood and paper ($6,400,000). Fibres and textiles decreased $12,100,000. The agricultural and vegetable products group decreased from $98,495,849, to $97,104,543, or $1,391,306.

Imports from the United States for the calendar year 1927 were valued at $835,878,000 as compared with $738,475,000 in 1926; a gain of more than 13 per cent.

The decrease in the exports of Canadian produce to the United States from 1926 to 1927 amounted to $8,567,828. Five of the main groups show increases and four decreases. The exports under the main group of agricultural and vegetable products decreased from $65,964,214 to $59,953,683, or $6,010,531. Under this group flaxseed decreased $7,511,203, bran and shorts $1,057,383, and all grains $1,730,555, while the exports of alcoholic beverages increased $4,166,612 and potatoes $1,508,717. The animal products group increased from $63,464,732 to $75,320,135, or $11,855,403. Under this group the following commodities show increases; Meats $2,909,431, cheese $2,351,549, raw furs $2,188,986, animals $1,813,834, fish $1,031,308, milk and cream $896,167, and unmanufactured leather $732,943. The exports under the fibres and textiles group decreased from $4,628,071, to $3,451,081, or $1,176,990. The falling off in the exports of raw wool, amounting to $909,970, was mainly responsible for the decrease in the fibres and textiles group. The wood and paper group increased from $237,906,110 to $242,019,601, or $4,113,491. Under this group paper, chiefly newsprint, increased $11,778,876, while unmanufactured wood, principally planks and boards, decreased $6,145,697, and manufactured wood, chiefly wood pulp, decreased $1,656,036. The iron and its products group increased from $7,582,833 to $10,680,762, or $3,097,929. The exports of farm implements accounted for $1,668,589 of the increase under this group, and pigs, blooms and ingots for $1,257,116. The non-ferrous metals group decreased from $58,740,061 to $39,007,020, or $19,733,041. The decrease in the exports of raw gold, amounting to $19,120,373, was largely responsible for the decrease in the non-ferrous metals group. The non-metallic minerals group increased from $17,244,986 to $17,251,325, or $6,339, while the chemical products group decreased from $9,197,929 to $8,092,371, or $1,105,558, and the miscellaneous group increased from $10,258,431 to $10,643,561, or $385,130.

SUMMARY OF THE TRADE OF CANADA BY MAIN GROUPS, 1914, 1921, AND 1927

Main groups	*Value of imports (million $)*			*Value of exports (Canadian) (million $)*			*Percentage 1927*			
							Of imports		*Of exports*	
	1914	*1921*	*1927*	*1914*	*1921*	*1927*	*1914*	*1921*	*1914*	*1921*
(A) WITH ALL COUNTRIES										
Agricultural and vegetable products	97.6	259.4	213.1	201.2	482.1	575.0	218.3	82.1	285.8	119.3
Animals and products	41.1	61.7	53.2	76.6	188.4	167.3	129.4	86.2	218.4	88.8
Fibres and textiles	109.2	243.6	183.6	1.9	18.8	7.7	168.3	75.4	405.3	40.9
Wood and paper	37.4	57.5	48.0	63.2	284.6	284.1	128.3	83.5	449.5	99.8
Iron and products	143.8	245.6	229.4	15.5	76.5	74.3	159.5	93.4	148.0	97.1
Non-ferrous metals	35.6	55.7	52.8	53.3	45.9	80.6	148.3	94.8	151.2	175.6
Non-metallic minerals	85.3	206.1	156.8	9.3	40.1	28.5	183.8	76.1	306.4	71.1
Chemicals and products	17.1	37.9	31.8	4.9	20.4	16.6	186.0	83.9	338.8	81.3
Miscellaneous	52.1	72.7	62.2	5.7	32.4	18.1	119.4	85.5	336.8	55.8
Total	619.2	1,240.2	1,030.9	431.6	1,189.2	1,252.2	166.5	83.1	290.1	105.3

(*Continued on Page 154*)

SUMMARY OF THE TRADE OF CANADA BY MAIN GROUPS, 1914, 1921, AND 1927—*Continued*

Main groups	*Value of imports (million $)*			*Value of exports (Canadian) (million $)*			*Percentage 1927 Of imports*		*Of exports*	
	1914	*1921*	*1927*	*1914*	*1921*	*1927*	*1914*	*1921*	*1914*	*1921*
(B) WITH THE UNITED KINGDOM										
Agricultural and vegetable products	16.2	38.7	38.3	146.8	141.2	330.1	236.4	99.0	224.9	233.7
Animals and products	5.7	5.2	5.4	35.4	91.3	67.8	94.7	103.8	191.5	74.2
Fibres and textiles	60.6	111.3	72.7	0.2	2.6	0.9	120.0	65.3	450.0	34.6
Wood and paper	3.7	3.1	3.9	12.8	36.8	15.8	105.4	129.0	123.3	42.8
Iron and products	17.3	16.7	15.0	1.4	17.6	8.1	86.7	89.8	578.5	46.0
Non-ferrous metals	4.8	6.7	5.6	16.6	9.9	14.2	116.6	83.6	85.5	143.4
Non-metallic minerals	6.3	9.1	9.3	0.4	3.1	2.3	147.6	102.2	575.0	74.1
Chemicals and products	4.3	6.0	4.9	0.6	3.4	3.6	113.9	81.6	600.0	105.8
Miscellaneous	13.2	17.1	8.8	1.0	6.9	4.1	66.6	51.4	410.0	59.4
Total	132.1	213.9	163.9	215.2	312.8	446.9	124.6	76.6	207.6	138.8
(C) WITH THE UNITED STATES										
Agricultural and vegetable products	44.1	119.6	97.1	34.1	146.5	59.9	220.2	81.2	175.6	38.1
Animals and products	23.3	42.9	35.4	32.3	75.8	75.3	151.9	82.5	226.9	99.3
Fibres and textiles	32.5	101.7	67.0	1.2	7.1	3.5	206.1	65.8	291.6	49.2
Wood and paper	31.7	52.4	41.1	45.2	216.0	242.0	129.6	78.4	535.4	112.0
Iron and products	121.4	226.9	206.6	2.0	19.7	10.7	170.1	91.0	535.0	54.3
Non-ferrous metals	27.7	46.0	42.9	34.2	30.0	39.0	154.8	93.2	114.0	130.0
Non-metallic minerals	74.2	188.4	132.0	7.2	22.3	17.3	177.8	70.0	240.2	77.5
Chemicals and products	9.6	28.1	20.6	3.2	12.2	8.1	214.5	73.3	253.1	66.4
Miscellaneous	31.8	50.2	45.0	4.0	12.7	10.6	141.5	89.6	265.0	83.4
Total	396.3	856.2	687.7	163.4	542.3	466.4	173.5	80.3	285.4	86.0

During 1927 the number of commercial failures in Canada number 2182, with liabilities amounting to $34,461,595. This is a decrease of four in number and $2,621,287, or 7 per cent, in liabilities, from 1926.

The number of telephones in operation in Canada during 1926 was 1,201,008, or 5 per cent more than during the previous year. According to these figures, there are now 12.79 telephones to each 100 persons in the Dominion.

The value of building permits issued by 63 Canadian cities for the year ended Dec. 31, 1927, was $185,451,271, or 18 per cent above 1926, which held the previous post-war record.

FINANCE. The following table supplied by the finance department of the Canadian government shows the results of the budget for 1926–27:

REVENUES AND EXPENDITURES

Ordinary revenue	*Total Apr. 1, 1926, to Mar. 31, 1927*
Taxation revenue:	
Customs duties	$141,968,677.64
Excise duties	48,518,160.44
War tax revenue:	
Excise taxes (sales, stamps, etc.)	105,618,160.00
Income tax	47,386,809.22
Business profits tax	710,102.19
Miscellaneous taxes	2,457,862.55
Total taxes	346,649,272.04
Interest on investments	8,559,401.12
Post office	29,069,169.35
Dominion lands	3,327,278.22
Canada Grain Act	2,582,984.15
Miscellaneous	8,507,676.50
Total ordinary revenue	398,695,776.88
Special receipts and credits on consolidated fund	1,757,704.02
Total	400,453,480.40
Ordinary expenditure	
Interest on public debt	129,675,367.50
Pensions	37,902,938.56
Subsidies to provinces	12,516,740.50
Soldier land settlement	1,250,787.45
Soldiers' civil re-establishment	6,976,761.91
Customs and excise	10,130,429.93
Post office	31,007,698.04
National defense	13,086,050.97
Agriculture	5,838,941.14
Public works, chargeable to income	11,178,054.24
Dominion lands and parks	4,251,662.54
Trade and commerce	4,332,837.87
Civil government	10,865,757.21
All other expenditure	40,584,144.78
Total ordinary expenditure	319,548,172.59
Special expenditure:	
Adjustment of war claims	64,405.08
Discount and expenses of loan flotations	3,278,032.13
Miscellaneous charges to consolidated fund	4,537,944.74
Capital expenditure:	
Public works	2,920,670.20
Railways and canals	16,638,032.43
Loans and advances non-active:	
Loans to Canadian National Railways	10,000,000.00
Loans to Canadian Government Merchant Marine	426,817.14
Loans to Quebec Harbor Commission	680,000.00
Miscellaneous accounts written down as non-active	462,496.76
Grand total expenditure	358,556,751.07
Decrease of debt	41,896,729.33
Increase of debt	....
Net debt Mar. 31, 1926	2,389,731,099.42
Net debt Mar. 31, 1927	2,347,834,370.09

On Dec. 31, 1927 the total funded debt of the Dominion of Canada was $2,442,228,463, a reduction of about $38,000,000 as compared with Dec. 31, 1926. Figures from the financial statement of the Dominion as of December 31 showed Dominion notes outstanding as $193,579,447, against $210,810,660 on Dec. 31, 1926; total liabilities, $2,816,586,792, against $2,772,582,397; sinking funds, $44,226,652, against $47,681,306; specie reserve, $130,586,091, against $119,193,407; miscellaneous and banking accounts, $75,601,724, against $108,934,457; active assets, $473,222,601, against $491,102,862; and total net debt $2,343,364,190, as compared with $2,281,479,535.

No tariff changes were proposed in the government budget for the fiscal year 1927–28, as introduced in the House of Commons on February 17, but provision was made for an aggregate reduction of $27,000,000 in taxation. The provisional decreases subject to the approval of Parliament were: Sales tax 20 per cent; income tax, 10 per cent; excise tax on matches, 25 per cent. The stamp tax on each check or similar document would be lowered to two cents, and the stamp tax on overdrafts and advances by banks abolished. Greater commercial stability and the release of additional funds for general purchasing were regarded as the principal purposes of the budget proposals. In his budget speech the Minister of Finance estimated that the net debt of Canada on Mar. 31, 1927, would be reduced by $31,000,000 from the amount on the same date of 1926. According to the figures given above it was actually reduced by $41,896,751. On Nov. 30, 1927, the net debt of the Dominion was given at $2,287,049,782, which showed a reduction of $60,784,000 since April 1.

SHIPPING. According to the latest available statistics the vessels entered and cleared at Canadian ports on inland waters between the United States and Canada were: Canadian, 26,653 of 18,654,786 tons; United States, 66,770 of 18,303,239 tons. The inland waterway system of Canada by lakes, rivers, and canals has a length of over 2700 miles. In 1925, 31,948 vessels of 18,789,709 tons passed through the Canadian canals. In the same year, sea-going vessels (as distinguished from inland trade with the United States) to the number of 20,436 of 20,470,379 tons entered the ports of Canada and 20,420 of 20,510,647 tons cleared.

The Canadian Government Merchant Marine (Ltd.), in its annual report for 1926, indicated that the company experienced a very satisfactory year. The operating loss amounted to only $90,159, which represents an improvement of $859,893 as compared with the previous year. In all, 46 vessels with an aggregate deadweight tonnage of 312,090 were operated. The business carried on during the year is shown by the following figures: Export traffic, 821,856 tons, valued at $97,829,572; import traffic, 397,704 tons, valued at $54,495,914; intercoastal traffic, 71,006 tons, valued at $9,170,444; total, 1,290,566 tons, valued at $161,495,931.

RAILWAYS. The mileage of the steam railways operated in 1925 amounted to 40,352 miles; the capital liability was $3,471,080,909; gross earnings, $455,297,288; operating expenses, $372,149,656; net earnings, $83,148,000; operating ratio, 81.70 per cent; freight ton-miles, 31,965,204,683; passenger miles, 2,910,760,047; employes, 166,027; salaries and wages, $237,755,752.

The Minister of Railways and Canals in the spring announced in the Canadian House of Commons that the Canadian National Railways would require during 1927, $1,660,000 to complete former branch lines and $7,356,000 to carry out the new branch line programme, which will consist of 337 miles of grading, 94 miles of track, and 56 miles of ballast. Additions and improvements will cost $17,834,000. The government loan of $5,000,000 and part of the trust issue for $15,000,000, will provide for equipment. In the month of July it was stated that the Canadian National Railways were engaged in an extensive programme of new construction and improvements and that work was being done over all the system from the Atlantic to the Pacific. The maintenance department was relaying 297 miles of main-line track with 100-pound rail and 421 miles of other track with 85-pound rail. The track material required included 4,042,000 tie-plates and 858,000 rail anchors. Changes in and additions to the terminal tracks at Charlottetown, Prince Edward Island, were planned, and yard tracks were to be extended at Sarnia and Windsor, Ontario, and at Port Mann, British Columbia. The main line between Montreal and Toronto was to be reballasted, and this with similar work on other parts of the system will involve the use of 317,000 cubic yards of crushed rock, 24,000 cubic yards of slag, and 1,763,000 cubic yards of gravel. The programme also provides for extensions to the automatic signal system, for the replacement of numerous wooden trestles with steel and concrete, and for the erection of several buildings.

NEW CANADIAN RAILWAY LINES TO BE CONSTRUCTED

Line	*Mileage*	*Estimated Cost*
St. Felicien to Mistassini River, Lake St. John district, Quebec	27.3	$1,463,000
Herbertville to Savanne Falls, Lake St. John district, Quebec	34.5	2,132,000
Grand'Mère to East Burrils, Quebec	7.9	1,683,000
Pilkington to Niagara Junction, Ontario	16.7	1,164,000
Willowbrook, northwesterly, Saskatchewan	22.0	616,000
Weyburn to Radville, Saskatchewan	22.7	570,000
Sturgis to near Peesane, Saskatchewan	100.0	3,395,000
Shellbrooke or near Parkside, westerly, Saskatchewan	37.0	1,200,000
Turtleford, 67 miles southeast, to between Hafford and Richard, Saskatchewan	35.6	1,130,000
Kindersley to Glidden, Saskatchewan	18.0	640,000
Spruce Lake, near westerly, Saskatchewan	29.5	990,000
Hudson Bay Junction, southerly, to meet proposed Sturgis-Peesane line, Saskatchewan	32.0	1,088,000
Elk Point, easterly, Alberta	19.0	745,000
Ashmont to Bonnyville, Alberta	38.0	1,415,000
Bretona to Clover Bar, Alberta ...	11.0	319,000
Total	451.2	18,550,000

The Dominion government definitely decided upon Fort Churchill as the terminal of the Hudson Bay Railway, following the recommendation of Frederick Palmer, the British expert, who was engaged to investigate the respective advantages of that port and Port Nelson. Such a decision was reached because practically unlimited shipping accommodation can be provided and at a minimum cost; borings recently taken over an extensive area show easily dredgd material and no rock within 50 feet of the low water level; it is superior to Nelson in safety, cost of construction and economy of time; and it is accessible for 30-ft. vessels at all stages of the tide. The railway will not likely go to Nelson, but will branch off at the present end of steel and proceed to Churchill. This will involve the construction of some 70 additional miles of railway at a cost of $5,000,000, but the economies effected on the harbor improvements and aids to navigation will more than compensate for this outlay. The cost of laying steel to the bay, providing adequate terminal facilities, and a grain elevator at Churchill and establishing the necessary aid to navigation in the Straits it is estimated will not exceed $20,000,000. Something like $22,000,000 has already been expended on the project.

GOVERNMENT. Executive power is exercised in the King's name by the Governor-General of Canada, acting through a responsible ministry or cabinet. Legislative power is in a Parliament of two houses: a Senate and House of Commons, the former consisting of 96 members appointed for life and the latter of 245 members under the representation act of 1924, elected for five years (unless sooner dissolved) by popular vote, including woman suffrage. Women are eligible for election to Parliament. The Governor-General in 1927 was Viscount Willingdon. As a result of the election of Sept. 14, 1926, the House of Commons was constituted as follows: Liberals, 118; Conservatives, 91; Liberal-Progressives, 11; United Farmers of Alberta, 11; Progressives, 9; Labor, 3; and Independent, 2. The cabinet as formed on Sept. 25, 1926, was as follows: Prime Minister, Secretary of State for External Affairs, President of the Privy Council, William Lyon Mackenzie King; Finance, James A. Robb; National Defense, Col. J. L. Ralston; Postmaster-General, Peter J. Veniot; Soldiers' Civil Reestablishment and Public Health, James H. King; Justice and Attorney-General, Ernest Lapointe; Customs and Excise, W. D. Euler; Marine and Fisheries, Pierre J. A. Cardin; Secretary of State, Fernand Rinfret; Railways and Canals, Charles A. Dunning; Interior, Indian Affairs, and Mines, Charles Stewart; Agriculture, William R. Motherwell; Public Works, John C. Elliot; Trade and Commerce, James Malcolm; Solicitor-General, Lucien Cannon; Immigration and Colonization, Robert Forke; Labor, Peter Heenan; Minister without Portfolio, Raoul Dandurand.

HISTORY

GENERAL EVENTS. As noted in the preceding YEAR BOOK the Canadian government appointed a Minister to the United States in the person of Vincent Massey, a wealthy manufacturer. The United States reciprocated early in February, when William Phillips, former Ambassador to Belgium, was appointed to the post of Minister at Ottawa. As an example of the type of matters which would be handled by the respective ministers of the two countries is the protest of Mr. Massey against the decision of the Labor Department of the United States to classify as immigrants all those Canadians who daily cross the international border to work. This new regulation hit the Windsor district of Canada particularly hard, inasmuch as many workers came over from Canada to the automobile factories of the United States. The new regulation was to go into effect on December 1, and would exclude all of those who could not get quota provisions by that time.

July was a month of celebrations. On the first the sixtieth anniversary of the formation of the Dominion was celebrated with fitting ceremonies at Ottawa, which were broadcast throughout the land. King George sent a felicitous message in which he stated that Canada now "has to take an ever increasing share in guiding the councils and solving the problems of the great commonwealth of which she is a part, conscious that within it there is perfect freedom and that the unity of the nations of the British Empire is the surest guarantee of peace in the world today." In the latter part of the month the Prince of Wales, Prince George, and Prime Minister Baldwin of Great Britain visited Canada and were everywhere royally welcomed, even the French of Quebec taking a conspicuous part in the celebrations. The key speeches dealt with the importance of unity in the Empire, the position of Canada in international affairs, and the significance of the British Crown, which "stands above all distinctions of country, race or party and serves to mark the unity in which all such differences are transcended." In the first week of August the distinguished visitors joined with Vice President Dawes, Secretary of State Frank B. Kellogg, Governor Smith of New York, from the United States, and Prime Minister Mackenzie King of Canada, in dedicating the new international bridge between Buffalo, N. Y., and Fort Erie, Ontario.

For the election of Canada to a seat in the Council of the League of Nations on September 15, see LEAGUE OF NATIONS.

THE QUESTION OF THE CANADIAN SENATE. An important conference of all the Prime Ministers and representatives from their cabinets of the various provinces of Canada was held at Ottawa in the fall. Prime Minister King called the conference for the purpose of discussing the reformation of the Canadian Senate and the right of Canada to amend her own constitution. The question of the reform of the Senate had been before the public for some time, but it was one of those questions which could be discussed academically without arousing any passion or demands for immediate action. The Canadian Senate as originally formed was organized somewhat along the lines of the British House of Lords. The Senators are appointed for life, and theoretically are supposed to be called from among the "elder statesmen" whose age and wisdom would have a tendency to cool the popular passions of the members of the House. As a matter of practice, however, when a vacancy occurs, the party in power selects one of its own friends, regardless of qualifications, and gives him a life post at $4000 a year. Incidentally, one of the Senators was 100 years old. Although the Senate is limited as in the United States with regard to initiation of financial measures, it can check the government's programme to a very serious degree in other matters.

Premier King had always been more or less interested in Senate reform, particularly at this time because the Senate had a majority of the parties which opposed him, and the only way he could possibly overcome this majority was by waiting until vacancies occurred. Any constitutional change, under the Dominion Act of 1867, must receive the consent of the British Parliament, which has never refused, on the other hand, to approve constitutional amendments placed before it. Many different methods of selecting the senators have been suggested. The one that Mr. King probably favored was the limiting of the term of appointment to a definite number of years and the actual selection of men because of their mental and cultural attainments. Generally speaking, the western provinces at this conference were in favor of changing the method of selection of the senators, while the more conservative eastern provinces seemed loath to interfere with a system that had been in effect for such a long time. Quebec, the home of the active French minority, was particularly opposed to any change for fear that she might lose some of the safeguards she now has. As stated above, this question in purely academic, and no tangible result was gained at the conference, but it was thought that, through the exchange of ideas, Mr. King may have obtained enough material to work out a formula, which at one and the same time might appease the radical west and allay the fears of the conservative east. See CELEBRATIONS.

CANADA, ANNIVERSARY OF UNION OF BRITISH COLONIES. See CELEBRATIONS.

CANADA, THE UNITED CHURCH OF. Under this designation a single body was formed in 1925 by the union of the Congregational Churches, the Methodist Church and the Presbyterian Church in Canada. The Methodist Churches of Newfoundland are included and form one of the Conferences. The Churches in Bermuda form a Presbytery. There were in 1927, 11 Conferences and 115 Presbyteries in Canada, Newfoundland and Bermuda, the territories embraced within the Church. During the period between the date of consummation and the end of 1927, according to report of the Board of Home Missions, 149 new fields, including 600 preaching stations, were opened in northern and western Canada, while 278 aid-receiving charges became self-sustaining; 410 unions of two or more congregations ministering in the same localities were effected, thus reducing by 410 or more the number of competitive churches in Canada. Such local amalgamations continued to take place from time to time.

Standing committees on negotiations looking to union with other communions, on worship and ritual, on church architecture, on law and legislation, employed workers, transfer of ministers between conferences, relation to various churches and on preparation of a manual of constitution and government, were at work during the year. A commission was appointed to report to the next General Council on courses of study and theological training for the ministry.

General statistics for the year ending Mar. 31, 1927, contained these returns: Number of members of sessions, 21,597; stewards or managers, 32,314; other members of official boards, 17, 813; persons under pastoral oversight, 1,465,540; Sunday schools, 5722, with 610,958 members; young people's societies, 3903, with 113,322 members; Women's Missionary Societies, 3075, with 112,009 members; women's associations, 4115, with 113,740 members. The value of all buildings and lands was $77,210,112, exclusive of foreign mission properties and properties under control of college and other boards of the Church. The amount raised for maintenance and extension fund was $2,813,930, and the grand total raised for all purposes, $15,253,079. Legislation during the year changed the close of the church year to December 31, for the future. It was decided to hold the third General Council, or supreme court of the Church, in Winnipeg, on the first Wednesday of September, 1928.

The principal boards of the Church were: Board of Foreign Missions; Board of Home Missions; Board of Education; Board of Evangelism and Social Service; Board of Religious Education; and Board of Publications. In addition, there were Committees on Finance; on Literature, General Publicity and Missionary Education; and on Maintenance and Extension Fund. Foreign missions were conducted in Central India, Trinidad, Korea, Japan, three regions of China and in Angola (Portuguese West Central Africa). Visitation of the foreign fields was undertaken during 1927 by delegates appointed by the Executive Committee of General Council. The Moderator and Rev. W. T. Gunn, M.A., D.D., Editor of the *Record and Missionary Review*, attended the golden jubilee of the Central India Mission. The Moderator and Rev. Principal A. Gandier, D.D., visited China, Korea and Japan.

The official organ of the Church is *The New Outlook*, published by The United Church Publishing House, Toronto. The *Record and Missionary Review* is a monthly of value in relation to the general missionary and benevolent enterprises. Copies of the *Basis of Union*, on which the three Canadian Churches united to institute the present Church are obtainable from the Secretary of the General Council. The general officers of the Church for 1927 were: Moderator, the Rev. James Endicott, D.D.; secretary of the General Council, the Rev. T. Albert Moore, D.D., 421 Wesley Buildings, Toronto 2, Ontario; treasurer, the Rev. Robert Laird, D.D., Toronto.

CANALS. WELLAND SHIP CANAL. In 1927 all of the various sections of the new ship canal under construction by the Canadian government between Lake Erie and Lake Ontario were well under way and marked progress was being made. The harbor work at Port Weller and Locks 1, 2, and 3 with the intervening canal prism had been completed except for the service gates and the lock-operating equipment. The twin Locks 4, 5, and 6 were almost completed, involving as they did an elaborate lock structure; while single lock No. 7 had been practically finished. Guard Lock No. 8 at Port Colborne was reported 90 per cent completed; while the excavation for the intermediate sections of the canal prism and the construction of embankments were well advanced, the former ranging from 35 to 96 per cent completed, and the watertight embankments were about 50 per cent completed. The whole breakwater extension at Port Colborne had been built, while during the year four 80-foot rolling-lift bascule type bridges were completed, and also one 200-foot vertical lift bridge. Contracts for three more bridges were awarded during the year, and the construction of one 200-foot double-lift bascule bridge was in progress. At the end of the year estimates were made that the Welland Canal could be used by upper lake freighters from Lake Erie to Lake Ontario in the summer of 1930, and that by 1929 certain portions of the north end could be employed for the diversion of existing canal traffic. The total estimated cost of the entire project was $115,000,000, and at the end of the year the expenditures had aggregated $86,000,000.

ILLINOIS WATERWAY. Progress was recorded on the important project for the waterway 63 miles in length under construction by the State of Illinois from the Chicago Drainage Canal at Lockport, Ill., to the Illinois River at Starved Rock. This canal would be an element in the proposed barge waterway between Lake Michigan and the Mississippi River providing a channel 200 feet wide with 9 feet depth and with five locks 110 x 600 feet, the first having a lift of 41 feet. At Marseilles and Lockport the locks were already completed, and at the end of the year the Starved Rock lock and the dam were reported 70 per cent completed. Progress was made in the construction of the Brandon Road lock, dam, and pool; while the remaining lock and dam, of the Marseilles diversion canal, was scheduled for construction in 1928. Contracts were awarded during the year for the valves and mitre gates for the Lockport and Marseilles locks. From the progress made it was believed that the new waterway would be completed in 1930. As stated, this canal would connect with the Illinois River, and the United States Congress in 1927 authorized the construction of a 9-foot channel from the end of the waterway at Starved Rock to the Mississippi River.

The River and Harbor Act of 1927 passed by the U. S. Congress carried a modified project for the improvement of the Port Arthur Canal and Sabine-Neches Canal by widening these waterways from Sabine dam up to the mouth of the Neches River. This project was adopted subject to the condition that local interests would aid the work by providing necessary rights of way and dumping grounds, would protect the United States against any damage claims, and would maintain that part of the Beaumont Turning Basin which lay within 75 feet of all municipal wharves. Furthermore, the Secretary of War was authorized to receive moneys from local interests and such were forthcoming by the end of 1927.

Meuse-Waal Canal. On October 27 the Meuse-Waal Canal, which forms the principal link of the improved waterway between Nimeguen and Maastricht, running from Mook on the River Meuse in the southern Province of Limburg to a point near Nimeguen in the northern Province of Gelderland, was opened in the presence of the Queen of Holland. This canal which provided a new waterway between Limburg, an important industrial section in which also were situated the coal mines, and the eastern and northern part of Holland, was made possible by the appropriation on June 15, 1915, of 12,000,000 florins ($4,824,000). The canal shortens the communication between Limburg and northern Holland by 50 miles and is part of a plan projected by the Netherlands government to improve the navigable use of the River Meuse as a means of connection between important centres of the Kingdom. The canal is about 8 miles long, with a breadth at the surface of 162 feet, a width at the bottom of about 108 feet, and a depth of 13 feet. It is navigable for vessels of 2,000 tons having a length of 327 feet, a breadth of 39 feet, a maximum depth of 9 feet, and a height above the water surface of 22 feet. Its locks are 855 feet by 52½ feet internally and accommodate two large Rhine barges and a tug in line. Another portion of the new waterway was the canalization of the River Meuse and the Juliana Canal. Five locks with weirs had been built in a length of about 67 miles of the River Meuse and the new waterway had become one of the finest for barge navigation in Europe. It had cost Holland nearly $2,000,000 for its construction and improvement.

During the year work was in progress on the enlargement of the Amsterdam Ship Canal between Ymuiden and Amsterdam, and the new lock which affords entrance to the Canal at Ymuiden was nearly finished. This lock was the largest in the world and its three steel rolling caissons had been launched and were being erected in place at the end of the year.

Rhine Canal. The improvement of the upper reaches of the Rhine above Strassburg was begun in 1927, after a long discussion in which the Treaty of Versailles figured, as under that convention the French were authorized to build a lateral canal alongside the Rhine between Basle and Strassburg and to draw water from the river for the production of electric power. Previously the Swiss had constructed an inland port at Basle in anticipation of the improvement of the river channel below that town. After considerable discussion the Central Commission of the Rhine approved both the carrying out of river improvements by Switzerland and Germany and the construction by France of the lateral canal which must be navigable and as free as the river itself. The first section of this canal between Basle and Kembs was begun by France with the concurrence of Switzerland during the year and it was expected to be completed in 1932, the project including a power station. This section would avoid the Istein rapids below Basle and the canal with its lock would accommodate Rhine barges of over 1200 tons capacity. Consequently it was doubtful whether river improvements would be undertaken in view of adequate facilities being provided by the canal.

See Panama Canal; Sault Ste. Marie, Canals at; Suez Canal.

CANARY ISLANDS. A group of small islands off the northwest coast of Africa, belonging to Spain. Area, 2807 square miles; population, Jan. 1, 1926, estimated at 509,287. The capital is Santa Cruz de Teneriffe, with an estimated population in 1925 of 67,144. The next largest city is Las Palmas, with a population of 67,122 in 1920. The University of Seville maintains an educational establishment in the Canaries and is in charge of higher education. There is regular steamship communication with Spain. The islands are under the administration of continental Spain, through a local governor.

CANBERRA. The new federal capital of Australia (q.v.)

CANCER. A brief article in the *Weekly Bulletin* of the City of New York Department of Health for Sept. 3, 1927, analyzes the figures which appear to show an enormous increase of cancer in the metropolis since 1898, namely from 61 per 100,000 residents in that year to 119 in 1926. In other words according to crude figures the death rate had nearly doubled. It is however necessary to correct these figures on a basis of age distribution, as is done in all mortality statistics, for the incidence of disease varies with age grouping. The adjusted figures thereby obtained show that the actual as contrasted with the apparent increase during this age period beginning with 1901 (no figures given for 1898) was from 78 to 108, a matter of 40 per cent in place of nearly 100. But this is not all, for it is possible to make other adjustments—for example in the case of nonresidents who die of cancer in institutions within the city limits—which bring down the increase to 36 per cent. While this may represent a true increase it is believed that much of it can be explained by better diagnosis and better death certificates. Having made all possible deductions it seems reasonable to suppose that there is a true increase although it is not so formidable as has been thought and not sufficient to cause any phobias on the part of the general public. Doubtless the elderly have always been menaced by the risk of cancer.

An editorial in *The Lancet* (London) for July 16, 1927, is one of several to appear during the year on the increasing frequency of cancer of the lungs or rather bronchi. Moreover it seems certain that cancer in this site is, like cancer of the lip and tongue, largely a matter of sex, habit and occupation for it occurs predominantly in males and in men who are especially exposed to dust and fumes which are known to possess the power of changing the columnar epithelium of the bronchi to the squamous form. The increased incidence seems to be associated with workers in dust of all kinds; with men who have much to do with road traffic and hence inhale the emanations from motors and from roads treated with tar, etc.; with smokers, possibly with increased risk of inhaled smoke through change from pipes and cigars to cigarettes. It has also been suggested that increased incidence may have been determined in part by the pandemic of influenza of 1918–19. It seems probable also that certain malignant growths heretofore termed extra-bronchial, and regarded as sarcomata, are in reality examples of cancer originating in the bronchial tubes. The total number of these intrathoracic growths of all kinds was still small, for during the previous six years but 148 had been registered at the Manchester (England) Royal Infirmary.

Numerous reports from those who have tested the Blair Bell lead treatment of cancer appeared during the year and the tenor differed within wide limits, but on the whole they were disappointing. One opinion was that at most the lead does no more than sensitize the cancer cells to the action of the Röntgen rays and can be regarded only as an adjunct to radiotherapy. Others speak of a specific anti-cancerous action of the metal and of the additional ability of the treatment to cause thrombosis of the tumor blood vessels. There is a consensus of opinion that the treatment does inhibit the tumor growth in a certain per cent of cases but thus far it was impossible to determine in advance the type of tumor to benefit by the treatment. Some authors gave prominence to the severe anæmia which resulted from the injections and to other specific symptoms of lead poisoning which are sufficient for the condemnation of the treatment. There were differences of opinion as to the dosage, for while Bell himself advocated rather large, well spaced doses the majority preferred the small repeated dose. Thus far the colloidal preparations in use had been without standardization and were moreover very unstable; they represented mixtures of metallic lead and its combinations which undergo a variety of changes in the blood. It was therefore impossible to understand the mechanism of the action of the metal, whether for good or ill.

CANEVIN. The Most Rev. John Francis Regis. Roman Catholic Bishop, died at Pittsburgh, Pa., March 22. He was born in Westmoreland County, Pennsylvania, June 5, 1852, and after studying at St. Vincent's Seminary in the same county was ordained priest June 4, 1879. He became rector of St. Mary's Roman Catholic Church in Pittsburgh, and from 1881 to 1886 was attached to the cathedral of that city. In the latter year he was made chaplain of St. Paul's Orphan Asylum, the Pennsylvania From 1888 to 1893 he was connected with the cathedral as chancellor of the diocese, and in the latter year became rector of St. Philip's Church at Grafton, Pa. In 1895 he returned to the cathedral as its rector, and, on Feb. 24, 1903, was consecrated titular Bishop of Sabrata and Coadjutor Bishop of Pittsburgh with right of succession to the see; he succeeded Bishop Phelan, who died in 1904. With a diocese composed of half a million Roman Catholics of various nationalities, he caused services to be conducted in 14 languages, and was eminently successful in his administrative duties. He resigned as Bishop of Pittsburgh on Nov. 20, 1920, and in 1921 was made titular Archbishop of Pelusium.

CAPE COLONY. See Cape of Good Hope Province.

CAPE OF GOOD HOPE PROVINCE. One of the four original provinces of the Union of South Africa; the southernmost province of the Union; formerly known as Cape Colony or the Colony of the Cape of Good Hope. Area, 276,536 square miles; population at the census of 1921, 2,781,542, of whom only 650,327 were European. The population at the census of 1911 was 2,564,965. The chief towns with their white population in 1921 were: Cape Town, 113,302; Kimberley, 18,288; Port Elizabeth, 25,982; East London, 20,374. The movement of population in 1925, so far as registered, was: Births, 55,350; deaths, 33,004; marriages, 14,427. In 1926 there were 112 local school districts. In 1925 there were 4509 aided schools with 135,955 European pupils, 174,295 non-European pupils, and 10,839 teachers. The trade between the province and the United Kingdom in 1926 was: Imports into the United Kingdom from the province, £12,385,897; exports from the United Kingdom into the province, £14,663,087. The chief exports to the United Kingdom were wool, mohair, hides and skins, corn, and feathers; the chief imports from the United Kingdom were cotton and woolen goods, machinery, iron and steel goods, and paper. The administrator of the province in 1927 was A. P. J. Fourie. See South Africa, Union of.

CAPE VERDE, vûrd, **ISLANDS.** A group of 14 islands off the western coast of Africa belonging to Portugal. Area, 1480 square miles; population at the census of Dec. 31, 1922. 149,793, of whom 69,001 were males. The chief products are coffee, medicinal substances, hides, and millet. A small military force is maintained on the islands. The estimated public revenue in 1926–27 was 17,504,815 escudos and the expenditure, 17,111,699 escudos. Imports in 1924 amounted to 68,208,277 escudos and exports, 4,740,120 escudos. The chief port is Bissau. The administration is in the hands of a governor whose seat is at Praia, the capital.

CAPPER RESOLUTION. See Arbitration, International; Peace and Peace Movements.

CARDIAC CLINICS. See Heart Disease.

CARINTHIA. A province of the republic of Austria; formerly a crownland of the Austro-Hungarian Empire. Area, 3680 square miles; population at the census of 1923, 370,748, as compared with 396,200 in 1910. Carinthia, in 1923, had 5.67 per cent of the total population of Austria. Capital, Klagenfurt, with a population in 1923 of 27,423.

CARLOTTA. See Charlotte, Princess.

CARNEGIE CORPORATION OF NEW

tered under the laws of the State of New York, June 9, 1911, this corporation was formed for the purpose of promoting "the advancement and diffusion of knowledge and understanding among the people of the United States." The original endowment was $125,000,000, an amount to be increased upon the final settlement of Mr. Carnegie's estate. The income of this principal fund is applicable only within the territorial limits of the United States, but the Corporation holds also a special fund of $10,000,000, of which the income is applicable in "Canada and the British colonies." The programme of the Corporation in 1927 was concerned chiefly with library service, the place of the arts in American life, adult education, scientific research, and educational studies. Although the Carnegie Corporation is an educational foundation, it is not an operating agency, and its activities are limited to financial coöperation with existing institutions and associations.

The outstanding feature of the year was the decision on the part of the Trustees to devote approximately two-thirds of the annual income to a reduction of unpaid obligations, which on Sept. 30, 1926, stood at $29,612,212.53, and which had been reduced under the policy adopted to $25,518,014.99, on Sept. 30, 1927. The annual report of Dr. Frederick P. Keppel, President of the Carnegie Corporation, showed that during the fiscal year ended Sept. 30, 1927, the sum of $2,187,644.76 was appropriated toward (1) The support and development of library services, $84,000; (2) The encouragement of organizations dealing with adult education, $122,600; (3) The support of national organizations in the field of fine arts and of departments of arts in colleges and universities and of projects for developing appreciation of arts and music, $465,500; (4) The support of educational studies, scientific research, $806,500; (5) Various special enterprises, including the Carnegie Endowment for International Peace, Institute of International Education, $470,190.60; (6) and various interest annuities pending payment of endowments to colleges and other educational organizations.

The Corporation continued its policy of making scholarship grants to graduate students who proposed to become college teachers of the arts, and ended its programme of distributing sets of arts teaching equipment to colleges. It continued to support various important projects, such as research in purification of insulin, investigation of high-frequency rays of cosmic origin, coöperative research in pyorrhea and otosclerosis, and study of the susceptibility to infectious diseases. Various studies conducted by the Society for the Promotion of Engineering Education, the Modern Language Association, the Institute of Economics, and the American Law Institute were continued through the year.

The Trustees of the Corporation are: James Bertram, Nicholas Murray Butler, Louise M. Carnegie, John J. Carty, Samuel Harden Church, Robert A. Franks, William J. Holland, Frederick P. Keppel, Russell C. Leffingwell, John C. Merriam, John A. Poynton, Henry S. Pritchett and Elihu Root. Officers of Administration: Elihu Root, chairman of the board; Robert A. Franks, vice chairman and treasurer; Frederick P. Keppel, president; James Bertram, secretary; and Robert M. Lester, assistant to the president. The headquarters are located at 522 Fifth Avenue, New York.

CARNEGIE INSTITUTE. See ART EXHIBITIONS.

CARNEGIE INSTITUTE OF TECHNOLOGY. A non-sectarian institution for technical education at Schenley Park, Pittsburgh, Pa.; founded in 1900. The enrollment for the autumn of 1927 was 5925, including 2400 registered in the regular day courses, and 3525 in the evening courses. For the summer session 665 students were registered. The faculty numbered 355, of whom 265 were on full time, and 90 on part time. The endowment of the institution was $15,399,412.76, and the annual income $788,040.48. The institute has a campus branch of the Carnegie Library of Pittsburgh which has 450,000 volumes. President, Thomas Stockham Baker, Ph.D., LL.D.

CARNEGIE INSTITUTION OF WASHINGTON. An organization founded in 1902 to encourage broad and liberal investigation, research, and discovery, and the application of knowledge to the improvement of mankind. The results of its investigations are made known through the scientific journals, the Institution's *Year Book*, a series of monographs which it issues, and other regularly established channels. During the year the Executive Committee authorized the publication of 15 volumes, at an estimated cost of $56,700, including the *Year Book*, George Sarton's *Introduction to the History of Science*, E. E. Barnard's *Atlas of Selected Regions of the Milky Way*, *Contributions to Embryology*, John S. Bassett's *Correspondence of Andrew Jackson*, *Contributions to Palæontology from the Carnegie Institution of Washington*, devoted to the palæontology of the Pacific Coast and Great Basin Regions of North America, and *Land Magnetic and Electric Observations* by H. W. Fisk and H. U. Sverdrup.

A careful study was made by the Institution of its plant biology programme and a plan adopted whereby unification, coöperation, and concentration were effected in administering significant researches in that field. Researches in plant biology had been carried on during the two decades previous to determine the relation of life process to environment, problems of plant heredity, the influence of environment, etc., in order to advance the boundaries of knowledge in the subject. The Institution continued its policy of giving its investigators opportunity for contact with those in related fields, by sending representatives during the year to significant international meetings in which results of its own researches were presented for discussion and conferences were held with leading students in other parts of the world. In furtherance of the Institution's work in history of early American cultures, Dr. Alfred V. Kidder, of the Archæology Department of Phillips Academy, Andover, Mass., was appointed as Associate of the Institution in Early American History, in order that he might have the opportunity of coöperating with Dr. Morley in extending and developing archæological and anthropological studies. Excavations in 1927 included two small structures of great interest and beauty in the Maya city of Chichen Itzá, in Yucatan. In the Warriors' Temple, one of the most beautiful buildings so far discovered in the Maya region, a second temple was discovered beneath the floor of the main structure, thus complicating the problems of the excavations, which were being carried on under the direction of Earl Morris.

At the annual meeting in December the Board of the Carnegie Institution authorized a three-year cruise of the non-magnetic yacht *Carnegie* to continue special studies in terrestrial magnetism, atmospheric electricity, and certain general problems in physical oceanography. The programme for the repairing, equipping and operating of the *Carnegie* was made possible through additions to the endowment fund of the Institution from the Carnegie Corporation of New York and through the generous aid and coöperation of departments of the government.

Although the Institution had been responsible for 24 years for preparing and publishing the *Index Medicus*, of literature relating to subjects which concern medicine and medical research, the *Index* was taken over in 1927 by the American Medical Association for joint publication with the *Index* of the Association, the joint venture to be known as the *Quarterly Cumulative Index Medicus*, the Institution to coöperate in meeting expenses for a limited period of time.

The aggregate sum of $74,000 was received in gifts during the year for the support of specific projects in mathematics, chemistry, physiology, genetics, seismology, geology and archæology, in recognition of the significant investigations carried on by the Institution. The total receipts for the year ending October 31, amounted to $33,676,020.45, while the expenditures totalled $33,386,135.32. The real estate and equipment were valued at $3,554,109. Three vacancies on the Board of Trustees created by the deaths of George J. Baldwin, Dr. Charles D. Walcott and Henry White, were filled by the election of Frederic A. Delano of Washington, D. C., Homer L. Ferguson of Newport News, Va., and William Church Osborn, of New York City. Officers for 1927 were: President, John G. Merriam; chairman, Board of Trustees, Elihu Root; vice chairman, Dr. Henry S. Pritchett; secretary, W. Cameron Forbes.

CAROLINE ISLANDS. See GERMAN NEW GUINEA.

CARPENTER, JOSEPH ESTLIN. British Unitarian theologian, died at Oxford, June 2. He was born in 1844, and was educated at the University College School in London, and at the University and Manchester New Colleges. Becoming a Unitarian clergyman, he was minister at Oakfield Road Church, Clifton, 1866–69, and at Mill Hill Chapel, Leeds, 1869–75. In the latter year he was called from the active ministry to become a teacher in Manchester College, London and Oxford, where he served for forty years. He first taught Old Testament and Hebrew, ecclesiastical history and comparative religion, and on the retirement of Dr. James Martineau as principal in 1885 Dr. Carpenter was elected vice-principal under Dr. James Drummond. In 1889 Manchester College was moved to Oxford and Dr. Carpenter went with it, being active in teaching until 1899, when he resigned the vice-principalship and his professorship, retaining only the Case Lectureship in Comparative Religion. This enabled him to devote himself extensively to writing, and he was the author of a notable series of theological and historical works. In 1906, when Dr. Drummond retired, Dr. Carpenter became principal and resumed his active lecturing, teaching not only the New Testament but also comparative religion. In 1915, when he relinquished the office of principal of Manchester College, he continued his Wilde Readership at Oxford. He received an honorary degree of D.D. from Glasgow, and that of doctor of theology from the Universities of Jena and Geneva. His publications, involving original scholarship or editorial work, included the following: Ewald's *History of Israel;* translation of Tiele's *Outlines of the History of Religion; The Life and Work of Mary Carpenter; Life in Palestine; The First Three Gospels, their Origin and Relations; The Bible in the Nineteenth Century; James Martineau, Theologian and Teacher; Phases of Early Christianity; Theism in Medieval India,* and other works. He was joint editor, with Prof. Rhys Davids, of *Dīgha Nikāya,* and the *Sumangala Vilāsinī; Buddhism and Christianity;* joint editor, with the Rev. G. Harford-Battersby, of *The Hexateuch According to the Revised Version;* and joint author with the Rev. P. H. Wicksteed, of *Studies in Theology.*

CARSON, JOHN FLEMING. American clergyman, died at Stony Brook, N. Y., September 2. He was born at Philadelphia, Pa., Jan. 28, 1860, and, after taking the degree of B.A. at the University of Pennsylvania in 1881, graduated from the Allegheny Theological Seminary in 1885, being ordained to the ministry on May 20 of that year. He was at first pastor of the First Reformed Presbyterian Church of Brooklyn, N. Y., and in 1892, when he decided to become a regular Presbyterian minister, a portion of his congregation supported him and bought out the interests of other members of the church, which became known as the Central Presbyterian Church. He was the moderator of the General Assembly of the Presbyterian Church, 1911–12, and chairman of the National Service Commission of the Presbyterian Church in the United States of America. He was president of the Stony Brook School for Boys and of the Stony Brook Assembly. He wrote: *Married Life in Sacred Story* (1897); *The Bible and Infidelity* (1899); and *The Word of Authority* (1914).

CASANOWICZ, IMMANUEL MOSES. Orientalist and assistant curator of old world archæology of the United States National Museum at Washington, D. C., died at Washington, September 26. He was born at Zholudok, Russia, July 25, 1853, and studied at the Evangelische Predigerschule and the University of Basle, Switerland, 1876–83. He was an instructor in Latin and Greek at the Evangelische Predigerschule, at Basle, 1880–81, and an instructor in Hebrew and church history at the German Theological School of Newark, at Bloomfield, N. J., 1883–86. He received the degree of Ph.D. from Johns Hopkins University in 1892, and became associated with the United States National Museum as assistant curator of the division of old world archæology. In addition to being a member of the American Oriental Society, he was vice president of the Anthropological Society of Washington. Among his writings, which included bulletins and articles in learned periodicals, is: *Paronomasia in the Old Testament* (1894).

CASE SCHOOL OF APPLIED SCIENCE. An engineering college at Cleveland, Ohio; founded in 1881. In the autumn of 1927 the enrollment was 627 students. The faculty numbered 67. The productive funds of the school amounted to $4,040,535, and the income for the year to $342,024. There were 24,000 volumes in the library. A new Mechanical Engineering Laboratory, costing about $500,000, was finished during the year. President, Charles Sumner Howe, Ph.D., D.Sc., LL D.

CASUALITY INSURANCE. See INSURANCE.

CATHOLIC CHURCH. See ROMAN CATHOLIC CHURCH.

CATHOLIC UNIVERSITY OF AMERICA. An institution of higher education at Washington, D. C.; founded in 1887. It includes graduate schools of sciences, law, and philosophy. Affiliated with it are the Catholic Sisters College for the training of teachers, Trinity College for young women, and the houses of study of 20 religious orders. The enrollment for the autumn of 1927 was 901, distributed as follows: School of theology, 94; school of canon law, 50; school of law, 15; school of philosophy, 438; school of letters, 76; school of sciences, 228. In the 1927 summer school there was an enrollment of 405. There were 116 members of the faculty, of whom 31 had the rank of professor, one promotion having been made from the rank of associate professor during the year. The productive funds amounted to $2,903,499.48, and the income for the year to $694,329.49. Among the important gifts of the year was an additional $100,000 from John K. Mullen of Denver, toward the erection of the John K. Mullen Memorial Library, which was under construction; and an additional $50,000 from the Hierarchy of the United States for the erection of a home for ecclesiastical professors. The library contained 262,000 volumes. Rector, Rt. Rev. Thomas J. Shahan, S.T.D., J.U.L., LL.D., Titular Bishop of Germanicopolis.

CATTLE. See LIVESTOCK; VETERINARY MEDICINE.

CATTLE TICK ERADICATION. See VETERINARY MEDICINE.

CAUCASUS, kä′kȧ-sŭs. A term applied to the indefinite region in southeastern Europe, comprising the isthmus which separates the Sea of Azov and the Black Sea from the Caspian Sea; formerly a government of the Russian Empire. It was divided into two districts of Trans-Caucasia and Cis-Caucasia, of which the former was divided among the three republics of Armenia, Georgia, and Azerbaijan (qq.v.). These afterwards separated and were respectively incorporated under the constitution of 1923 in the Union of Soviet Republics, and are now known as the Transcaucasian Federation of Soviet Republics.

CAVALRY. See MILITARY PROGRESS.

CAVANAUGH, COLONEL JAMES B. American military engineer, died at Coronado. Cal., April 26. He was born in Illinois in 1870; his family moved to Olympia, Wash. He was appointed to the United States Military Academy, graduating in 1892, being commissioned in the Corps of Engineers and studying at the Engineers' School of Application, from which he graduated in 1895. After service at Detroit, Mich., and Mobile, Ala., on river and harbor improvements and fortification work, in 1900 he was ordered to the Philippines on road and other construction, and in the following year was assigned to Fort Leavenworth, Kan. In 1907 he was made assistant to the Chief of Engineers at Washington, D. C., and in 1911 he was placed in charge of the Puget Sound District in the State of Washington, where he brought to a successful completion the Lake Washington Canal at Seattle, designing the government locks. During the World War he organized and commanded the Eighteenth Railway Engineers, a Pacific Coast organization which was one of the first regiments to reach France and serve actively as a railway regiment. He received the Distinguished Service Medal. On his return from France he was district engineer of the Nashville, Chattanooga and Florence districts. He retired from the army in 1922.

CELEBRATIONS. The items presented under this heading in 1927 as in the years immediately preceding continue to be for the most part sesqui-centennial celebrations of anniversaries of important events associated with the period of the War of the Revolution. They were accompanied by a growing interest in historic incidents in the development of the United States, and were largely organized under the auspices of the patriotic societies that were the outcome of the centennial celebrations of fifty years ago.

January 3–5. The one hundred and fiftieth anniversary of the battle of Princeton was celebrated on these dates. The exercises began on January 3, with a meeting in Alexander Hall in Princeton University, at which an historical address was made by Prof. W. S. Myers. In this, after reviewing the events pertaining to the battle, he made a plea for the preservation of the battle field as a memorial. This plan was favorably considered and a large sum of money was promptly subscribed. On January 4, a series of nine tableaus depicting historic events were presented in the Garden Theatre, and on the fifth a banquet given under the auspices of the New Jersey Society of the Sons of the Revolution brought the celebration to an end.

January 5–7. The sesqui-centennial anniversary of the independence of Vermont was celebrated by various exercises, of which a commemorative address descriptive of the early history of the State by John G. Sargent, Attorney-General of the United States, delivered in Montpelier, was the most important.

January 16–18. The 221st birthday of Benjamin Franklin was celebrated in New York City on the 16th by a pilgrimage to the Hall of Fame where the bust of Franklin was decorated with flowers and addresses were made. On the 17th memorial wreaths were placed on the statue in Park Row by representatives of various patriotic societies. The week beginning with January 16 was sponsored as Franklin Week by the International Advertising Association.

April 19. The observance of Lexington Day in New York City began at St. Paul's Chapel, where a color escort from four Scout troops stood guard in front of the chapel. When "Paul Revere" and "William Dawes" rode up, the vicar of the chapel handed them a torch, symbolic of liberty, and an American flag. They then stood on opposite sides of the grave of Gen. Richard Montgomery, in the church porch, and as the bells of St. Paul's tolled the two boys placed a lighted lantern of warning on the tablet. This was intended to represent the warning beacons mentioned in Longfellow's poetic version of Paul Revere's ride. Led by a Fifth Avenue omnibus carrying the scout color escort, the two riders proceeded down Broadway to Trinity Church, where a wreath was placed on the tomb of Alexander Hamilton. Next the procession moved to the Washington statue in front of the Subtreasury Building and then stops were made at other monuments, the last one being at Grant's Tomb on Riverside Drive.

May 1. The one hundred and thirty-eighth anniversary of the inauguration of George Washington as first President of the United States was commemorated by a church service under the auspices of the Sons of the Revolution in St. Paul's Chapel, New York City. Members of various patriotic societies carried a score of flags, replicas of famous battle colors of the Revolution, as they marched into the chapel. The Very Rev. Dr. Howard C. Robbins, Chaplain of the Society, spoke on the character and idealism of Washington and warned his audience of the "disaster that would be involved in forsaking that idealism."

June 14. The Governors of forty States issued proclamations asking that the flag be displayed and suitable exercises be held in honor of the nation's emblem on the 150th anniversary of its adoption. The observation of the day began on June 13 when Dwight Braman, head of the Allied Patriotic Societies, broadcast an address over the radio. Exercises under the auspices of the New York Young Republican Club in New York were also held at the base of the Statue of Liberty on Bedlow's Island. The figure was decorated with flags and through an arrangement of lights it was made to appear as though the great torch were actually burning. The programme included singing, speaking and the laying of flowers at the foot of the statue.

June 16. The 201st anniversary of the first permanent settlement of the Shenadoah Valley was celebrated at Kauffmans Mill, near Luray, Va., in the vicinity of the site of the first permanent settlement. The first settlers were Swiss, in 1726, who were soon followed by English. Inducements were offered by Virginia for locating Indian trading posts west of the Blue Ridge Mountains crossed by Alexander Spottswood in 1716.

July 1. The 60th anniversary of the union of the British Colonies of North America in one dominion was celebrated throughout Canada, but the principal event was in Ottawa. The semi-centennial of confederation was in 1917 but owing to the war a celebration was not thought advisable. In April, 1927, Parliament decided to make July 1, the sixtieth anniversary, a period of rejoicing and thanksgiving that the Dominion had not only survived but increased in area, unity, and world importance. The official exercises began in Ottawa at noon and included the first playing of patriotic airs by the new carillon in Victory Tower on Parliament Hill, which was broadcast throughout the Dominion, the reading of the Diamond Jubilee resolution of Parliament, various addresses, especially one giving the history of the formation of the Dominion by Prime Minister W. L. Mackenzie King and one by the Governor-General, Viscount Willingdon. In the evening an historical pageant passed through the city, illustrating the various phases of national life since Champlain came up the Ottawa River, but dealing chiefly with historical events since 1867. No celebration in the history of Canada has ever aroused such widespread interest. From Cape Breton Island, on the Atlantic, to Vancouver Island, on the Pacific, the Dominion was a mass of color in honor of the event. Even the Indian and Eskimo settlements in the Far North joined in the celebration.

July 4. The first of New York State's sesqui-centennial celebrations was the one at Crown Point, where tablets were dedicated, and a pageant entitled, "Crown Point—Gibraltar of America" was given. Two seaplanes from the U. S. Navy executed maneuvers over Lake Champlain before Old Fort Crown Point. The speakers included Hanford McNider, Assistant Secretary of War, and Fred L. Porter, Chairman of the Celebration Committee.

July 4. Carleton Island in the upper St. Lawrence River, named after Sir Guy Carleton, and off Cape St. Vincent, was also the scene of a New York State sesqui-centennial celebration. It was on this island, comprising about 1000 acres, that St. Leger camped for several days when advancing toward Fort Stanwix. A bronze marker commemorating this fact was unveiled. Addresses were made by Robert Lansing, Dr. A. C. Flick, State Historian, and Dr. James S. Riggs, President of the New York State Historical Association.

July 4. At Gillespie Gap, near Little Switzerland, N. C., a bronze monument was unveiled to the memory of the patriots from the mountains of upper North Carolina and Tennessee, who passed there on Sept. 29, 1780, on the way to Kings Mountain, where they virtually annihilated the British forces under Lieut.-Col. Ferguson, and also to the descendants of this hardy band who, during the World War, fought against the Hindenburg line as part of the 30th Division. Former Gov. Cameron Morrison was chief speaker.

July 4. A commemoration of the final cessation of warfare between the Iroquois Confederacy and the white settlers of New York took place in Elmira, N. Y., where a bowlder with a tablet was dedicated near the spot where the Treaty of Painted Post was signed. The treaty was made at Newtown, now Elmira, in July, 1791, between representatives of the United States government and the Six Nations.

July 18. The 133d anniversary of the attack by the opponents of the excise tax on whisky on the home of Gen. John Neville, collector of internal revenue for the western Pennsylvania district was celebrated at Woodville, near Pittsburgh, Pa. The Neville house which stood on the banks of Chartiers Creek was burned. The leader of the insurrectionists was killed and several were wounded. Prompt action by the government, under Washington, put an end to the revolt.

July 20–21. The 150th anniversary of the historic events connected with the early settlement of Cherry Valley, N. Y., was celebrated with a pageant consisting of ten scenes and participated in by 200 persons, depicting the history of the vicinity, and by the unveiling of a marker to designate the Cherry Valley Turnpike as the first great artery of travel from Albany to the West, chartered in 1799 to run from Albany to the tavern of John Walton in Cherry Valley. Also addresses pertinent to the event were delivered and other exercises were held.

July 28. Near Cuba, N. Y., on lands belonging to the Indian race, representatives of the petroleum industries joined with those of the State of New York, to witness the unveiling of a tercentenary monument at the side of the spring and the well where 300 years ago a white man first found oil on the North American continent, and to the site of the first oil well drilled in America. Robert L. Welch, of New York City, secretary and general counsel of the American Petroleum Institute, made the principal address. Other speakers were representatives of the Seneca Indian Nation—Theodore F. Jemerson, Jr., of Brant, N. Y.—and of the Franciscan order, the Rev. Bonaventure McIntyre of the Franciscan Monastery at Winsted, Conn., repeating in a measure the history of three centuries ago, when Father Joseph De La Roche D'Allion, a Franciscan missionary and explorer, was guided to the spot by Indians. A Seneca Indian war dance concluded the ceremony which was under the auspices of the New York State Oil Producers' Association.

August 4. There was staged in Deadwood, So. Dak., a parade and pageant, each depicting the historical past of the old gold-mining town. Miners, bull-whackers, trappers, cowboys, soldiers, Indians, gingham-clad frontier women, and many other long forgotten characters familiar in the early days of Deadwood Gulch participated. This annual celebration of "Days of '76" showed the present Black Hills city transformed into a practical and impressive reproduction of the town as it was in those turbulent days of 50 years ago. It was attended by President and Mrs. Coolidge.

August 6. The first of the celebrations conducted under the auspices of the New York State Department of Education was held near Rome, N. Y., to commemorate the Burgoyne campaign in the Fort Stanwix-Oriskany-Mohawk area. The exercises began with dedication ceremonies at Oriskany, N. Y., including the presentation of the deed to the battle monument and about five acres of land to the State of New York by the Oneida Historical Society. An address was made by G. L. Prescott whose father aided Governor Seymour in erecting the monument in 1884. The Oriskany battlefield and old Fort Stanwix were largely restored for this event. The work of cutting the monument for the inset of bronze carrying the 241 names not known at the time of the original dedication, was done by the Mohawk Valley Historic Society. At Fort Stanwix, the old Brackett house was moved from the site of the fort in the city of Rome and the spot graded and seeded and a State marker dedicated. A pageant, the Siege of Fort Stanwix and the Battle of Oriskany, including the making of the first improvised Stars and Stripes and its use in battle was presented. The principal addresses were made by Dr. Alexander C. Flick, State Historian, and Dr. John H. Finley. The Celebration Committee included Elihu Root as Honorary President, W. Pierrepont White, Chairman, and Donald W. White, Secretary.

Of conspicuous importance in this connection is the settling of the long controversy over the proper name of the old fort near Rome, N. Y., from which was flown for the first time the Stars and Stripes. The War department decided July 16, that it will be officially known as "Fort Schuyler," formerly Fort Stanwix. The results of its investigations, the department announced, showed that "Old Fort Stanwix, which was named after the British General who built it, was rebuilt in 1776 and renamed Fort Schuyler. It was designated Fort Schuyler in a letter from Col. Elias Dayton to General Schuyler under date of Sept. 22, 1775. In 1777 it was called Fort Schuyler by Colonel Willett and Lieutenant Colbrath, who were present in the fort during its siege by St. Leger, and who left a written record of their experience in 1778. There is, however, evidence to the effect that the place was called Fort Stanwix during the period stated above, because the new designation 'Schuyler' was not generally known.

"The first engagement of American troops under the flag of the Stars and Stripes design has been established as taking place at the old fort, through a similar exhaustive study of sources by the War Department. During the investment of the fort, which began on Aug. 2, 1777, a flag was hoisted by the garrison, which is described as follows in a volume entitled *A Narrative of the Military Actions of Colonel Marinus Willett:* 'The fort had never been supplied with a flag. The necessity of having one had, upon the arrival of the enemy, taxed the invention of the garrison a little, and a decent one was soon contrived. The white stripes were cut out of ammunition shirts, the blue out of the camlet cloak taken from the enemy at Peekskill, while the red stripes were made of different pieces of stuff procured from one and another of the garrison.' The description of the collection of the red, white, and blue materials which were made up into a flag, and the statement that enemy flags captured on Aug. 6, 1777, were displayed under the 'Continental flag,' indicate that the description of the Continental flag was known to the garrison on the day it was raised, and that the flag that floated over the fort was the Stars and Stripes."

August 13. The 150th anniversary of the occasion when Col. John Harper rushed at the head of relief troops to the aid of settlers beset by Indians and Tories retiring from the Battle of Oriskany during the War of the Revolution was celebrated at Cobleskill, N. Y., by a pageant depicting that and other incidents of the time.

August 13. The birthday of Thomas Jefferson was celebrated by a pilgrimage to Monticello, Va., under the auspices of the Jefferson Centennial Commission. Addresses were made by the Hon. William G. McAdoo and Senator Carter Glass, and it was decided to urge upon Congress the recognition of Thomas Jefferson's birthday on April 13 as a national holiday and establishment of a memorial in Washington to the author of the Declaration of Independence.

August 13–16. The sesqui-centennial anniversary of the battle of Bennington was celebrated with much ceremony. The events began with the presentation of a historical "Pageant of Bennington," which was given on the nights of the three days and on the afternoon of the 15th. Special historical services were the conspicuous events of Sunday the 14th. On the 15th bronze markers were dedicated with appropriate addresses on the homes of James Breckenridge, and Lieut.-Col. Frederick Baum, and at the place of the first encampment of General Stark. The final day was occupied with the dedication of a marker on the site of Col. Seth Warner's home and the dedication of historical markers on the battle field at Walloomsac, N. Y., including a bronze relief map of the area of the battle field showing the movements of the troops during the contest. These memorials were presented by the State of Vermont and accepted by the State of New York represented by Governor Smith.

A military parade was the final event of the celebration. The United States government authorized the issue of 40,000 memorial half dollars. These were designed by Charles Keck of New York. On the obverse of these coins was the profile of Ira Allen under the legend: "He Founded Vermont, the 14th State." A monumental shaft was reproduced on the reverse which bore also the legend: Battle of Bennington. A commemorative two cent postage stamp was issued by the Post Office department in honor of the event.

August 24. The 257th anniversary of the discovery of the Shenandoah valley was celebrated in Linden, Va., by beginning work on the Shenandoah Park highway from Front Royal toward Washington as the first link of a proposed John Marshall coast to coast highway, with appropriate exercises, including an address by John Barton Payne. It was also the 257th anniversary of the exploratory trip of John Lederer, a Franciscan monk, to whom a granite marker was erected near the spot where he first saw the Shenandoah valley. The exercises were under the auspices of the Shenandoah National Park Highway Association.

August 26. A memorial celebration of the 151st anniversary of the battle of Long Island was held in Prospect Park, Brooklyn, N. Y., under the auspices of the Kings County Historical Society. Delegations from the American Legion, the Veterans of Foreign Wars, and other patriotic organizations participated in the ceremonies. The celebration was held on the spot where 800 Americans under Major-General Sullivan successfully held in check 6000 Hessian troops until reënforcements under Cornwallis threatened the American flank and forced them to withdraw.

September 9–11. The sesqui-centennial celebration of the battle of the Brandywine was participated in by representatives of the States of Delaware and Pennsylvania and from Great Britain and France. A tour of the battlefields was made on the 9th and wreaths were placed upon the graves of the soldiers who fell in this battle. One of immortelles was placed to the memory of the British and American soldiers by Col. R. Pope-Hennessey, military attaché of the British embassy at Washington; Maj. Georges Thenault, aviation attaché of the French embassy, placed a wreath of laurel in tribute to the American soldiers; Governor Fisher of Pennsylvania placed a similar wreath to the memory of General Lafayette who was wounded in the battle, and Maj.-Gen. William C. Price of the Pennsylvania National Guard dedicated a wreath to the British soldiery. During these events "The Star Spangled Banner," "God Save the King," and the "Marseillaise" were played. Other exercises included a historical pageant and various military maneuvers.

September 10. The 150th anniversary of the founding of the government of the State of New York was celebrated in Kingston, N. Y. The events included a pilgrimage to historic buildings and sites with the placing of a wreath on the tomb of Governor George Clinton; the dedication of the new Kingston State Museum; addresses by Governor Smith, former Senator Wadsworth, and others; and a historical drama depicting: The adoption of the first State Constitution, the inauguration of Governor George Clinton, the first meeting of the State Supreme Court, and the organization of the first State Legislature. A medal commemorating the event was struck.

September 11. The opening in Chicago, Ill., and formally naming a new boulevard "Leif Erickson Drive" which sweeps broadly for 11½ miles along the shore of Lake Michigan south from the centre of the city was celebrated under the auspices of the Norwegian National League on this date. A Viking ship with brilliant sail pushed its way to the outer edge of the new boulevard, and from this ship stepped Gerhard Folgero, dressed as Leif Erickson was when he set foot upon the American continent in the year 996. The 42-foot boat was an exact half-size replica of the Viking's ship, in which Folgero and four men made the long voyage across the Atlantic, landing at Boston Aug. 12, 1926, after 6700 miles of buffeting and hardships. Erickson was on a missionary voyage to a small community in Greenland when he discovered the American continent, historians of his race say. He named the country "Vinland," and he and his crew remained there four years, from 996 to 1000.

September 17. Under the auspices of the National Security League which believes that an understanding of the fundamental principles of the Constitution of the United States is the only antidote for radical and Socialist propaganda, the governors of the states of Arkansas, Delaware, Maine, Maryland, Mississippi, Nebraska, Nevada, New York, North Dakota, Rhode Island, Texas, and Utah officially proclaimed the observance of Constitution Day. Clergymen were asked to preach sermons on the Constitution and State Superintendents of Education in Kentucky, New Mexico, Ohio, Oregon, Rhode Island, South Dakota, Texas, and West Virginia, in accordance with the suggestion of the League, issued special orders to their teachers to prepare suitable programmes. League speakers were heard in various parts of the country on Constitution Day. In New York City, the statues of Washington and Franklin, and the tomb of Alexander Hamilton were decorated with wreaths, and appropriate addresses were delivered. The slogan for Constitution Week was "Cherish the Constitution lest we perish."

October 1–4. The 150th anniversary of the battle of Germantown, Pa., was celebrated with interesting ceremonies, among which was the placing of ten markers on various sites to indicate places where important events occurred during the battle. Also a bronze tablet to the memory of Gen. Francis Nash of North Carolina was dedicated with appropriate exercises by representatives from the Old North State at the place where General Nash was buried after the battle near the American encampment.

October 6, 7, and 8. The 150th anniversary of the battles of Saratoga, culminating in the surrender of General Burgoyne, was elaborately celebrated. The preparation included the restoration, under the supervision of the Advisory Board on Battlefield and Historic Sites, of the battle fields as nearly as possible to the condition in which they were at the time of the battles, including the rebuilding of Fort Neilson. All of the points of interest on the battle fields were designated with descriptive markers so that the progress of the battles could be studied on the field. The first day's events were held in Glens Falls, N. Y., under the auspices of the

New York State Historical Association at which papers were read, notably one on Burgoyne by Prof. D. R. Fox, who described the British general as "the man upon whose military ruin was built the United States." Other events were a sham battle presenting the great contest of 150 years ago and culminated in a pageant of Saratoga portraying events of the period. Five hundred dancers interpreted by dramatic, lyric, and pantomime art phases of history included in the pageant. Josephine Wilhelm Wickser of Buffalo was the author of the pageant which was composed of the episodes, "A New Soil in the Making," "A New Mind in the Making," "A New Spirit in the Making," "A New Flag in the Making," "A New Nation in the Making," "A New Soul in the Making." Various monuments were dedicated with appropriate addresses, and finally part of the battle field itself was made a public park and officially transferred to the custody of the State of New York. Representatives of 48 states and of the allied nations and the enemy nation of the Colonies in the War of the Revolution were present, and it was estimated that more than 100,000 spectators participated in the celebration.

The U. S. government authorized a two cent commemorative postage stamp on which was depicted a reproduction of Trumbull's famous painting of Burgoyne's surrender, now in the Capitol, and it bore the words "Ft. Stanwix, Oriskany, Bennington, and Saratoga." Congress is to be asked to appropriate more than $1,000,000 for the creation of two national memorials on the Saratoga battle fields. The State Legislature was to be asked to authorize the purchase of the remaining 2,000 acres of the battle field and also of additional land at the battle fields at Walloomsac, where the Battle of Bennington was fought, and at Oriskany. The Mayor of Mechanicsville announced a movement to establish a museum in the great tower visible from Massachusetts and Vermont, containing memorials to the thirteen original States, assembly rooms for patriotic societies, and cyclorama paintings of the events of the Revolution which took place in that vicinity.

October 8–15. Burlington, N. J., celebrated the 250th anniversary of its founding with a week of festivities. The programme began on October 8 with the unveiling of a tablet to mark the street-corner meeting place of the Council of Proprietors of New Jersey since 1688 which preceded the gathering in the meeting house. The Council, New Jersey's oldest realty corporation, received its charter and land grants from the English throne. Its meetings, held for years under a tree at the corner, were later continued in front of the site of a bank, on the walls of which the tablet was erected. Other events were special religious exercises, a community service, a historical pageant, and on military day which was the ninth anniversary of the 114th Infantry's participation in the Battle of Blois Dormont, in the Argonne, the entire regiment paraded under command of Colonel Edward B. Stone, who was promoted from Captain to Major on the field of battle. As a feature of the celebration the new State National Guard armory was dedicated and turned over to Company K of the 114th as its permanent home.

October 12. The 60th anniversary of the meeting in 1867 of 15,000 Indians, representing the Kiowa, Cheyenne, Arapahoe, Comanche, and Plains Apache Tribes, with a commission authorized by Congress and appointed by the President when what is now known as the Medicine Lodge Treaty was signed. Under it the Indians agreed to end the frontier warfare and to stay within reservation boundaries. This event was celebrated in Medicine Lodge, Kan., with a pageant written and directed by Prof. F. L. Gilson of the Kansas State Teachers' College, Emporia. It depicted the arrival of Coronado, the planting of the cross and the Spanish flag, the Lewis and Clark expedition, the coming of early settlers, an Indian attack and the signing of the peace treaty. Members of the original five tribes, white descendants of pioneer settlers, and Government and State officials participated in the ceremonies.

October 12. The 150th anniversary of the battles of Forts Clinton and Montgomery in the War of the Revolution was celebrated at Newburgh, N. Y. It included a pageant, a parade, and fireworks. The literary and other exercises were held in Washington's Headquarters and addresses were made by Senator R. S. Copeland, Congressman Hamilton Fish, and others. It formed the lower Hudson part of New York State's sesqui-centennial celebrations.

October 13–15. The 150th anniversary of the convening of the first Continental Congress was held in York, Pa. It was in the courthouse in York that Congress received the news of Burgoyne's surrender, passed the Articles of Confederation, issued the first national Thanksgiving proclamation, received the news from Franklin in Paris that France would send a fleet, money, and an army, and received Baron von Steuben and Lafayette and commissioned them as major-generals. It was in York also that Lafayette frustrated the plot to supplant Washington with Gates. During the celebration the mornings were devoted to gatherings at which historical events were described, the afternoons, to parades, both military and civil, and the evenings to the presentation of a pageant depicting the history of York. A joint committee officially representing Congress was appointed consisting of Senators Fess, Ohio; Caraway, Arkansas; Moses, New Hampshire; and Swanson, Virginia; and Representatives Ackerman, New Jersey; Crisp, Georgia; Tilson, Connecticut; and Moore, Virginia, to attend the celebration.

October 22. The 150th anniversary of the battle of Red Bank, N. J., was celebrated by a military and civic parade that followed the same route over which Count von Donop led 1200 trained Hessian troops against the Continental garrison of 450 troops defending Fort Mercer at Red Bank. The Continentals, commanded by Colonel Christopher Greene, loaded their cannon to the muzzles with grapeshot and did not fire until the enemy rushed the outer works of the fort and attempted to scale the inner embrasure. The Hessians lost nearly four hundred in dead and wounded. Among the fallen was Count von Donop. The civil exercises were participated in by the governors of New Jersey and Delaware and representatives from Rhode Island and Pennsylvania. The principal address was made by Governor Moore of New Jersey.

November 30. At Georgetown, S. C., representatives of the French government and of the United States joined with South Carolina and Georgetown in paying tribute to the memory of Lafayette, who came across the Atlantic 150 years ago to assist the American colonists in their war for freedom. Lafayette first landed on American soil at North Island in Georgetown Harbor, and the unveiling of a tablet there was to commemorate the event.

December 1. The 150th anniversary of the landing of Baron von Steuben at Portsmouth, N. H., was celebrated in New York City by a gathering held in Madison Square Garden at which addresses were made by Jacob Gould Schurman, American Ambassador to Germany, Secretary of War Dwight F. Davis, Major-Gen. William N. Haskell and Mayor Walker. Baron von Steuben brought to the struggling Colonies a wealth of military experience and ability which was of priceless value to the untrained forces of the Continental Army, in which army he became a Major-General and Inspector-General.

WASHINGTON BICENTENNIAL. The second official meeting of the United States Commission for the celebration of the 200th anniversary of the birth of George Washington was held in the White House on Jan. 13, 1927. At this meeting President Coolidge was invited to deliver an address before a joint meeting of Congress on Washington's birthday in the chamber of the House of Representatives. Accordingly on that date an impressive address was made by the President before a distinguished audience, including not only the members of Congress, but also the Supreme Court, members of the Washington family, the diplomatic corps, and other guests. Among the many proposals received by the Commission for their consideration the following are typical: The erection of permanent State buildings in or near the District of Columbia, designed by the authority of each State and territory, the Federal Government to contribute the land; the completion of the George Washington Memorial Building and Victory Memorial; the publication of the complete history of the founding of the city of Washington, and President Washington's part therein; a world's fair in the city of Washington, the buildings to be permanent, with a view to annual expositions; publication of (*a*) Washington's orders as commander in chief of the army during the War of the Revolution, (*b*) of a book of Washington as seen by his contemporaries, and (*c*) of a collection of Washington's letters; a comprehensive nation-wide, all-embracing national celebration, reaching its climax and revolving around the concept of Washington for a University of America, wherein to teach republican principles of government; and the building of a national memorial highway from the home of Washington to the city of Washington, D. C.

CELESTIAL MECHANICS. See ASTRONOMY.

CELTIC STUDIES. See PHILOLOGY, MODERN.

CEMENT. During 1927 the production and shipments of portland cement from the United States were considerably in excess of the totals for 1926. The preliminary figures in 1927, given in the accompanying table, indicate an increase of over 4 per cent in production and more than 5 per cent in shipments over 1926. During the year 1927 the various plants operated at 73.9 per cent of their capacity as compared with 76.2 per cent in 1926. This estimate is based on total output of finished cement as compared with the estimated capacity of 155 plants at the close of December, 1927, and of 141 plants at the close of December, 1926. The following table gives the final estimates for 1927 by districts compared with the figures for 1926 for both production and shipments. In the year 1926 the exports of cement amounted to 974,226 barrels, valued at $2,995,833. In 1926 the imports were 3,250,056 barrels, valued at $5,128,836.

PRODUCTION AND SHIPMENTS OF FINISHED PORTLAND CEMENT IN 1927, BY DISTRICTS

[*In thousands of barrels*]

District	*1927*	*1926*
PRODUCTION		
Eastern Pennsylvania, New Jersey, and Maryland	42,119	42,139
New York	10,750	8,796
Ohio, Western Pennsylvania, and West Virginia	17,311	15,914
Michigan	13,959	12,087
Wisconsin, Illinois, Indiana, and Kentucky	21,927	21,350
Virginia, Tennessee, Alabama, Georgia, Florida,[a] and Louisiana[b]	16,022	15,308
Eastern Missouri, Iowa, Minnesota, and South Dakota	14,321	14,139
Western Missouri, Nebraska, Kansas, and Oklahoma	10,097	10,277
Texas	5,656	5,007
Colorado, Montana, and Utah	2,133	2,524
California	14,105	13,842
Oregon and Washington	3,508	3,197
Total	171,908	164,530
SHIPMENTS		
Eastern Pennsylvania, New Jersey, and Maryland	41,178	40,636
New York	10,530	8,536
Ohio, Western Pennsylvania, and West Virginia	17,188	15,759
Michigan	13,712	11,959
Wisconsin, Illinois, Indiana, and Kentucky	22,384	21,877
Virginia, Tennessee, Alabama, Georgia, Florida[a] and Louisiana [b]	15,528	14,963
Eastern Missouri, Iowa, Minnesota, and South Dakota	14,565	14,026
Western Missouri, Nebraska, Kansas, and Oklahoma	10,253	10,159
Texas	5,692	5,042
Colorado, Montana, and Utah	2,264	2,457
California	14,021	13,660
Oregon and Washington	3,607	3,118
Total	170,922	162,187

[a] Began producing September and shipping October, 1927.

[b] Began producing June and shipping July, 1927.

CENSUS, UNITED STATES. The Bureau of Census, W. M. Steuart, Director, was engaged during the fiscal year ended June 30, 1927, in preliminary work on the fifteenth decennial census of population to be taken in 1930. During the year the first census of distribution was undertaken, for the benefit of producers, merchants and ultimate consumers. The statistics show the number of different classes of stores, kinds of business, number and classes of persons engaged, salaries and wages paid, stocks on hand and net and gross annual sales, and include wholesalers, retailers, commission merchants, manufacturers' agents, brokers and other classes engaged in the distribution of commodities.

The biennial census of manufactures for 1925, completed before the end of 1927, gave data for 187,390 establishments engaged in the fabrication of materials, 4850 laundries, and 2406 dyeing and cleaning establishments, and covered approximately 250,000 statistical items. The Bureau issues a monthly *Survey of Current Business* covering most of the basic industrial and commercial movements, and including more than 1700 individual statistical series. This publication has resulted in an increased interest on the part of business men in information on market analysis, establishment of sales quotas, commodity surveys, and credit facilities. Monthly reports on the cotton situation, showing amount of cotton consumed and on hand, number of spindles, and active spindle hours, furnish a valuable measure of activity in the industry. Among other monthly or quarterly reports are those on production of boots and shoes, clothing, leather, tobacco, and automobiles.

Progress was made on the campaign for satisfactory State laws governing the registration of vital statistics (q.v.), in an effort to bring all States into the registration area for which the Bureau compiles and publishes birth and death data. An annual census of instructions was inaugurated during the year, limited to Federal and State penal institutions, hospitals for the insane, and institutions for feeble-minded and epileptic, and steps were taken to standardize and improve current State and local statistics of crime and criminals in the United States.

With the failure in the Sixty-ninth Congress of the second deficiency appropriation bill, carrying an item of $100,000 to enable the Bureau to make tabulations for the Department of Agriculture from the 1925 census, it was not possible to compile all the detailed data desired but the Bureau was able to publish reports for each State and each county of all the principal data collected for the census. Tabulations are still required to show value of farm buildings, expenditures for fertilizer, labor, and lumber, kinds of road, distance to market, tractors and radio receiving sets on farms, acreage and production of specific crops and specified classes of livestock; classification of taxes and of mortgage debt by size and value of farm.

Work was in progress on the census of religious denominations which is taken every ten years. This census covered the year 1926 and the facts were secured directly from the individual churches, congregations and other local organizations, of which there were about 225,000. At the end of the fiscal year 71 smaller denominations had made complete returns and 42 others were nearly complete. The reports included denominational history, doctrine, and statistics. The Bureau has been engaged in perfecting its machinery and electrical devices used to tabulate the detailed data and it reports equipment of 2283 machines of various kinds, most of which were in constant use during the fiscal year in punching 123,000,000 cards, of which 83,000,000 were for the Census Bureau.

CENSUS, World Agricultural. See Agriculture.

CENTRAL AMERICA. The term generally applied to the southern portion of the North American continent lying to the north of the Panama Canal and south of Mexico and consisting of the five states, Costa Rica, Guatemala, Honduras, Nicaragua, and Salvador. See the articles on these respective countries.

CEYLON, sē-lŏn′. An island in the Indian Ocean off the southern extremity of Hindustan, belonging to Great Britain. Its extreme length from North to South, i.e. from Point Palmyra to Dondra Head, is 266 miles; its greatest width 140½ miles from Colombo on the west coast to Sangemankande on the east coast. Area, 25,332 square miles; population, at the census of 1921, 4,504,549, as compared with 4,106,350 in 1911; estimated at the end of 1925, 5,009,501. The registered movement of population in 1925 was as follows: Births, 193,262; deaths, 117,545: marriages, 31,331. The chief cities with their populations in 1921 were: Colombo, 244,163; Jaffna, 42,436; Galle, 39,073; and Kandy, 32,047. The number of vernacular schools in 1925 was: Government schools, 1121, attended by 118,061 boys and 53,296 girls; aided schools, 1751, attended by 124,378 boys and 80,270 girls; unaided schools, 1040, attended by 18,228 boys and 5000 girls; English and Anglo-vernacular schools, 344, attended by 47,831 boys and 14,250 girls.

Ceylon is almost entirely agricultural and specializes in export crops. Plantation tea, rubber, and coconuts make up the bulk of its products, but considerable amounts of cacao, cinnamon, citronella grass, and miscellaneous products are grown, largely by individual native farmers. Considerable rice is also raised, but more than half of the country's total consumption of this food supply is imported from India and other sources. Specializing in export crops as Ceylon does, its export record is an excellent gauge of its prosperity. The volume of exports in 1926 reached 483,588,500 rupees, compared with 385,517,000 for 1924 and 471,866,000 rupees for 1925. Tea was the ranking product of the island, but rubber was rapidly approaching it in value of output. During 1926 a total of 217,000,000 pounds of Ceylon tea, which was valued at 213,000,000 rupees, was exported, as against 209,800,000 pounds valued at 199,697,000 rupees in 1925. Black tea is produced almost exclusively. While the distribution of Ceylon tea is very wide the great bulk of it goes to English-speaking countries.

Exports of rubber from the island increased from 82,950,000 pounds in 1924 to 142,500,000 pounds in 1926, while the value increased from 69,000,000 rupees to 184,400,000 rupees. Coconuts and coconut products come third on Ceylon's production list and account for about one-sixth of the island's total exports. Imports into Ceylon during 1926 were valued at 407,867,000 rupees as compared with 360,380,000 for 1925. Nearly one-quarter of Ceylon's imports is made up of husked rice, obtained almost entirely from British India. Rice imports in 1926 amounted to 8,795,000 hundredweight as against 8,321,000 for 1924. Cotton piece goods, coal, fertilizers, refined sugar, crude petroleum, kerosene, automobiles, fish, and gasoline made up the bulk of the remainder of imports.

The chief mining interest is plumbago, 186 mines being in operation at the end of 1925 and the exports in that year being 309,000 hundredweight. Gold, thorium, and monazite exist to some extent but have scarcely justified exploitation on a commercial scale. Gem quarries abound throughout the island and among the precious stones found are moonstones, rubies, cat's-eyes, and sapphires. The native manufactures include weaving and the making of tortoise shell boxes, earthenware, lacquer work, jewelry, carving, etc. They are not of much commercial importance, however. The chief manufactures on a large scale pertain to agricultural products, including the extraction of coconut oil.

The revenue in 1924–25 was £7,702,645 and the expenditure £7,091,046. The shipping which entered and cleared in 1925 totaled 19,419,000 tons. At the end of December, 1925, there were 791 miles of railway open to traffic and extensions were under construction. The administration as embodied in an Order in Council of December, 1923, is in the hands of a governor, aided by an executive council of nine members and a legislative council of 49 members (12 official and 37 unofficial). Of the unofficial members, 23 are elected to represent the territorial divisions, two to represent the Europeans, two the Burgher Community, one the Chamber of Commerce, one the Western Province Tamils; three the Mohammedans, and two the Indians. Governor at the beginning of 1927, Sir Hugh Charles Clifford; succeeded March 24, by Sir H. J. Stanley, Governor of Northern Rhodesia.

The Maldive Archipelago, consisting of 13 coral islets, 400 miles west of Ceylon, is tributary to Ceylon. They are sparsely settled by a mixed race of probably pure Aryan stock and governed by a native Sultan. The islands are covered with coconut palms and yield millet, fruit, and coconut produce. The population numbered over 70,000 in 1921. The islanders are civilized.

CHAKSTE, Janis. First president of Latvia, died at Riga, March 14. He was born in Courland, Sept. 14, 1859, and first attained prominence in political life in 1906, when he was elected a member of the first Russian Duma by the Government of Courland. Previously he had been a member of the bar at Mitau; after his legislative service he retired to that city, where he remained until 1915, when the town was invaded by the Germans. Moving to Petrograd, he founded a central relief committee to aid the Latvian refugees, who at that time numbered about 500,000. In 1916, leaving Russia, he went to Stockholm to begin propaganda for Latvian independence, and published there a book in German entitled *Die Letten und ihre Latvija* (*The Letts and Latvia*). In 1918, when the independence of the Latvian Republic was proclaimed, he was elected chairman of the People's Council, and was assigned the task of securing recognition of the Latvian Republic by the Allies, being appointed chief of the special delegation sent to Paris and London. In 1920 he was elected President of the Latvian Constituent Assembly and became professor of international law at the University of Riga. He was unanimously elected President of the republic by the first parliament, Nov. 14, 1922, and was reëlected, Nov. 6, 1925, for a term of three years.

CHAMBERLAIN, Houston Stewart. German writer on music and literature, died at Bayreuth, Germany, in January. He was born Sept. 9, 1855, at Portsmouth, England, the son of a British admiral. His earliest education was received at Versailles, France, and later he attended Cheltenham College, Gloucester. At first he intended to follow a military career, but poor health compelled him to change his plans. In 1870 he left England and settled in Germany, at first in Stettin. Here Professor Kuntze aroused his interest in Germanic culture and civilization, the study of which occupied him for many years and resulted in his most important work, *Die Grundlagen des Neunzehnten Jahrhunderts*, published in 2 volumes (Munich, 1899, 1901; reprinted in many editions) and translated into English by Lord Redesdale (1910). In 1879–81 he studied natural sciences at Geneva, and also music. From 1885 to 1889 he lived in Dresden, contributing to various prominent German, English and French periodicals, writing with equal facility in all three languages. From 1889 to 1908 he lived in Vienna. In the latter year he married Eva, the youngest daughter of Richard Wagner, and removed to Bayreuth. From the very beginning of his life there he was one of the most ardent and influential apostles of Wagner's art, and a man of deep penetration and keen, analytical insight. His great biography of the master, *Richard Wagner* (Munich, 1896; 2 vols.) is a profound psychological study rather than a mere record of events. *Das Drama Richard Wagners* (Leipzig, 1892) is still one of the best works on the subject. His other works are: *R. Wagners Echte Briefe an F. Präger* (1894), *Die Ersten 20 Jahre der Bayreuther Festspiele* (1896), *Parsifalmàrchen* (1900); *Worte Christi* (1901), *Heinrich von Stein* (1903), *Immanuel Kant* (1905), *Goethe* (1912), *Lebenswege Meines Denkens* (1919), *Mensch und Gott* (1920), *Betrachtungen über Religion und Christentum* (1921). Consult L. von Schroeder, *Houston Stewart Chamberlain* (Munich, 1918) and Anna Chamberlain, *Meine Erinnerungen an Houston Stewart Chamberlain* (Munich, 1923).

CHAMBER MUSIC. See Music.

CHAMBER OF COMMERCE, INTERNATIONAL. The fourth meeting of the International Chamber of Commerce opened its sessions on June 27 at Stockholm, Sweden, with 825 delegates representing 41 different countries in attendance. Sir Alan Anderson, who was the acting president, in his opening address referred to various obstacles in the ways of international commerce and urged the removal of trade barriers, which include not only tariffs, but also the adverse treatment of foreigners, obstructions to transportation, prohibition of exports and imports and instability of currency. This removal of trade barriers was a dominant topic of discussion at the sessions of the Chamber, as it was considered vital for Europe and also because a study of the subject formed the basis of a large part of the work of an international economic conference held in Geneva.

Among the speakers at Stockholm were Sir Arthur Salter, head of the Economic Section of the League of Nations, and other leaders of the various delegations, who urged that the conclusions of the economic conference at Geneva should be adopted, inasmuch as trade barriers were strangling the nations economically and that not only were millions of the population suffering, but that a reduced standard of living was general as a result of such restrictions. The trade barriers were defined in a report submitted as "those arbitrary national restraints on free movement of goods, capital and services which not only restrain trade and traders but limit the economical production and distribution of goods, capital and services to the detriment of the peoples affected by the restraint. In production there is a unit of maximum economy: in distribution there is a market of maximum economy. Any barrier which prevents the coordination of these two is a trade barrier in the sense used by the Chamber."

The Chamber of Commerce pledged itself to coöperate with the League of Nations in carrying out the conclusions of the economic conference at Geneva and urged the various governments to accept these conclusions and to take tion on them as had been done by Belgium, Austria, Germany, Czechoslovakia, Holland, and Sweden. The Chamber endorsed the Geneva declaration that tariff walls and policies hampering trade should be reduced or removed and expressed its satisfaction that the League of Nations proposed to call a diplomatic conference to draft conventions giving equality of treatment to foreigners admitted to any country and defining the conditions under which trade could be carried on and foreigners be taxed. The abolition of passport visas was advocated, and the ratification of the navigable water ways and maritime port conventions effected at Barcelona and Geneva was urged, in order to remove transportation barriers. Various tariff reforms and simplification of administration were urged together with long-term treaties to prevent tariff fluctuations and various artificial and obnoxious restrictions, which were hindering the free interchange of commodities between nations. In addition to trade barriers the conference discussed a number of technical reports dealing with patents, motor taxes, international telephony, and uniform practice regarding bills of exchange; it recommended that efforts be continued to reduce double taxation on nationals residing abroad and that shipping documents should be simplified and made uniform. Action was also taken regarding the details of international commercial arbitration. Before the adjournment of the meeting, Alberto Pirelli, a rubber manufacturer of Milan and a member of the Dawes Committee and of the Italian debt funding committee to the United States was elected president of the International Chamber. The next meeting was to be held in 1929 at Amsterdam.

CHAMBER OF COMMERCE OF THE UNITED STATES. A federation of more than fifteen hundred American business organizations having its headquarters at Washington, D. C. It was organized in 1912 for the purpose of providing a central association to gather and to make known business opinion on economic questions of national importance. The President of the United States and other government officials aided in its establishment, and throughout its existence the Chamber has coöperated closely with the government.

The Chamber's membership is made up of both national trade associations and local chambers of commerce. Policies are established by this membership in annual meetings and through the Chamber's referendum system, an effective method of obtaining the views of all classes of business on subjects affecting business enterprise.

A comprehensive information service is maintained at Washington. This work is facilitated by the form of organization existing within headquarters, where departments representing the main divisions of business industry are conducted by competent staffs. These departments are as follows: Finance; transportation and communication; manufacture; domestic distribution; foreign commerce; natural resources; insurance; civic development, and agriculture. In addition, there are other service units, including a well-equipped research department. The Chamber publishes *The Nation's Business*, a magazine.

The Chamber, as one of its functions in the interest of business, gives particular attention to the relations between government and business, offering business judgment on legislative proposals and holding itself ready at all times to advise the government regarding the needs of business and the possible effect of governmental measures applying to business. The current aims of the Chamber, as outlined by President Lewis E. Pierson, are as follows: Extensive tax revision; Federal flood control; restriction of government activities in ownership and operation of the merchant marine; scientific adjustment of postal rates: removal of legislative obstacles to voluntary railroad consolidation; reorganization of Federal executive departments and bureaus in the interest of economy and efficiency; opposition to a Federal department of education; return of alien property sequestered during the war subject to the settlement of war claims of American citizens; opposition to a government controlled monopolistic workmen's compensation fund; repeal of legislative restrictions standing in the way of a permanent parcel post convention with Cuba; ratification of the Turkish treaty; and legislation simplifying ocean bills of lading. These were only some of the national questions with which the Chamber was ready to deal at the end of 1927. It had already equipped itself to support the Federal Reserve System by a thorough study of the entire banking and currency system of the country. Other questions which received the Chamber's attention were immigration, agriculture, power development, commercial forestry, highway improvement, and the distribution census.

The affairs of the Chamber are directed by a board of 34 directors, each elected for a term of two years, representing the various geographical divisions of the country, as well as the main divisions of business. The officers are: President, Lewis E. Pierson, New York; Chairman of the Board, Judge Edwin B. Parker, Washington, D. C.; Vice Presidents: A. J. Brosseau, New York; William Butterworth, Moline, Ill.; Robert R. Ellis, Memphis, Tenn.; Paul Shoup, San Francisco, Calif.; Treasurer, John Joy Edson, Washington, D. C.; Secretary, D. A. Skinner, Washington, D. C.

CHARITIES. See CHILD LABOR; CHILD WELFARE; OLD AGE PENSIONS; RED CROSS; SOCIAL WORK; UNEMPLOYMENT; YOUNG MEN'S CHRISTIAN ASSOCIATION; YOUNG WOMEN'S CHRISTIAN ASSOCIATION, and the various articles on religious bodies and societies with charitable activities.

CHARLOTTE, PRINCESS. Former Empress of Mexico, died at Meysse, near Brussels, Belgium, January 19. She was the daughter of Leopold J. King of the Belgians, and was born at Laeken, Belgium, June 7, 1840, being baptized Marie Charlotte Amélie Augustine Victoire Clémentine Léopoldine. Her mother was Princess Louise of Orleans, the daughter of Louis Philippe, King of the French. When 16 years of age, on July 27, 1857, she was married to the Archduke Maximilian of Austria, a brother of the Emperor Francis Joseph. Maximilian was then chief of the Austrian navy, and later, as Governor of Milan, lived at the charming castle of Miramar, near Trieste. After the City of Mexico had been captured by the French, Maximilian was offered the throne by an assembly of nobles, and in May, 1864, he and his wife arrived at the capital. The empress figured prominently in the Mexican Empire, and in its collapse after its abandonment by Napoleon III. When her husband had been deserted by the French Emperor and his position had been weakened by enormous debts, she persuaded him to retain the throne rather than abdicate, as he desired. In 1866, when but 26 years of age, she went to Paris and Rome to plead her husband's cause, but her mission was a failure, and it was feared that her mind would give way under the strain. After the capture of Maximilian and his execution, June 19, 1867, her mental breakdown was complete, and she retired to Miramar, and later to the Château de Bouchout, owned by her brother, Leopold II. She lived for more than fifty years at this chateau, maintaining the fiction that she was still Empress of Mexico and presiding over a small court. While she suffered from mental derangement she never was declared incompetent, and in many instances there were evidences that her reason was, at least in part, restored. During the World War, when the Germans marched through Belgium, the chateau of the ex-Empress was not molested, for an American flag floated over the gateway of the grounds, and later the Germans ordered the safety of the place on account of the Empress' relationship to Emperor Francis Joseph. She was visited from time to time by various royal personages, including King Albert and Queen Elizabeth of Belgium, she being the aunt of the king. After her death the Belgian court went into ten days of mourning.

CHAUTAUQUA INSTITUTION. An educational movement established in 1874 by Lewis Miller and Dr. John H. Vincent, both prominent in the Methodist Episcopal Church. The institution is non-sectarian in principle, although the original idea of the organization was a Sunday school for teachers where a series of correlated lectures and entertainments were presented during the months of June, July and August. The three general fields of activity are: The general assembly, consisting of an educational and popular series of lectures and addresses, concerts and dramatic entertainment, etc.; the summer schools, offering courses of formal classroom instruction; and a home reading circle in which a set of four books is designated for reading during the year, in addition to a news narrative appearing in a monthly review. In 1927 there were 19 departments in the summer school, with 125 instructors and 2500 students, while the attendance at the annual session was estimated at 45,000. Financial support is obtained largely through individual gifts. Permanent buildings, valued at $1,250,000, are owned by the Institution at Chautauqua, N. Y., where the general summer assemblies are held and the Chautauqua Press is located. Officers: George E. Vincent, honorary president; Arthur E. Bestor, president; William L. Ransom, chairman of trustees; Shailer Mathews, chairman of the executive board; Charles E. Pierce, secretary; and Jessie M. Leslie, treasurer.

CHEESE. See Dairying.

CHEMICAL INDUSTRY, Society of. See Chemistry, Industrial.

CHEMICAL SOCIETY, American. See Chemistry, Industrial.

CHEMICAL TRUST. See Chemistry, Industrial.

CHEMICAL WAR SERVICE. See Military Progress.

CHEMISTRY. The advances made in this branch of science during the year were steady and persistent, as is perhaps best shown by the increasing publication of both the results of investigations and of treatises on chemistry. Also the pursuit of chemistry was more than ever becoming a recognized profession and a greater number of young men and women were preparing themselves for it as a life work, at the leading educational institutions.

New Elements. The discovery of no new element was announced during the year. Nevertheless there was some controversy concerning the discovery of the element No. 61. In the Year Book for 1926 (p. 140) there was given an account of the discovery of this element by Prof. B. S. Hopkins of the University of Illinois, who conferred upon it the name *illinium* in honor of the university with which he was connected. At the close of the paragraph mention was made of the claim by Prof. Luigi Rolla for its discovery in virtue of a sealed communication deposited with the Reale Accademia dei Lincei on June 21, 1925. This communication was published (*Atti R. Accad. Lincei*, vol. 4, 1926, p. 515) and in it was made the claim that an absorption band was observed in the spectral region between samarium and neodymium, which has a wave length agreeing closely with that calculated for the previously unknown element of atomic number 61. For this element the name florentium was proposed. B. S. Hopkins presented a summary of the American researches (*Journ. Franklin Inst.*, vol. 204, p. 1) that led to the discovery of the element 61.

Atomic Weights. The determination of these important constants continued to occupy the attention of a number of chemists, notably in the United States at the laboratories at Harvard University under the direction of Prof. T. W. Richards and in Europe by O. Hönigschmid and his associates in Berlin.

Among the results announced are the following: According to G. P. Baxter and A. Q. Butler (*Journ. Amer. Chem. Soc.*, vol. 48, p. 3113) the atomic weight of titanium, namely 47.90 (Cl 35.458) is confirmed by the use of more refined analytical methods. According to E. Moles (*Berichte*, vol. 60, p. 134) the atomic weight of argon ±39.88, as adopted by the German Commission in 1923, is based on the weight of the liter of crude argon, and is certainly low. The most probable weight of the liter of pure gas is 1.7833±0.0001 gram, from which the atomic weight of argon is deduced as 39.94 which the author regards as a minimal value. N. H. Smith reports (*Journ. Amer. Chem. Soc.*, vol. 49, p. 1642) that the mean of nine analyses of scandium chloride gave 45.160 as the atomic weight of that element. He prepared his anhydrous scandium chloride by passing carbon tetrachloride vapor diluted with nitrogen over pure scandium oxide at 750–800°. K. K. Krishnaswami (*Journ. London Chem. Soc.*, 1927, p. 2534) made determinations of the atomic weight of antimony from five samples of which four were from India and Burma, using Willard's and McAlpin's method. His results ranged from 121.744 to 121.754, which were in good agreement with previous determinations and also agree within the limitation of experimental error. According to O. Hönigschmid and A. von Welsbach (*Zeit. Anorg. Chem.*, vol. 165, p. 284) who examined yttrium chloride containing no spectroscopically detectable quantity of other rare elements, they found the probable value of the atomic weight of yttrium as 88.925 ± 0.002. These same authorities examined dysprosium sulphate containing only about 0.1 per cent of holmium and determined the atomic weight of dysprosium as 162.46.

ANALYTICAL CHEMISTRY. A knowledge of the constituents of a compound are of value in determining its properties. Analysis is essential for synthesis, and so an important branch of chemistry is the study of the methods of analyzing substances. Some of the recent improvements are here recorded as well as improved forms of apparatus.

A reagent prepared by mixing a solution of potassium carbonate, hydrogen carbonate, and thiocyanate is recommended by L. Fabian (*Biochem. Zeit.*, vol. 179, p. 59) for the colorimetric determination of sugar. This new reagent is mixed with one of copper sulphate and heated with the sugar-containing solution. The reduction in intensity of color as compared with that of the original reagent gives the amount of sugar. For this new determination of sugar, the author claims that within physiological limits of blood-sugar concentration, the error of the method is ± 5 per cent. K. O. Schmitt in studying precise volumetric analysis discusses (*Zeit. Anal. Chem.*, Vol. 70, p. 230) the use of weighing burettes and weighing tubes for measuring the reacting substances and of colorimetric methods for determining the exact end-point of a titration, and also the magnitude and means of correcting errors introduced by weighing in air. According to F. W. Ashton (*Nature*, vol. 119, p. 489) mercury obtained from coal tar when it is present in the highest fraction, gives isotopic lines indistinguishable from those of ordinary mercury.

A. Müller describes a new form of pipette (*Zeit. Angew. Chem.*, vol. 40, p. 18) as follows: At the upper end of the pipette is a bulb closed by a ground glass stopper connected to a cock, a right-angle bend, and an expansion filled with a suitable absorbent. One such attachment serves for a series of pipettes. It has been found by A. Bernardi (*Gazzetta*, vol. 57, p. 232) that when dilute solutions of cobalt salts are treated in the cold with sodium hydroxide in the presence of air, the blue basic salt at first formed rapidly changes to a green stable compound. Among new forms of apparatus may be mentioned a new nitrometer which according to A. Klemenc and E. Hayek (*Zeit. Anorg. Chem.* vol. 105, p. 157) may be used for determining the quantity of nitrogen present in very dilute solutions of nitric and nitrous acids.

BIOCHEMISTRY. The chemical value of medicinal preparations, their reactions with the human systems, and their general relations to life are among the elements that form this interesting branch of chemistry, some of the advances of which are indicated in the paragraphs that follow.

A study of the biochemistry of tooth growth (*Journ. Biol. Chem.*, vol. 71, p. 437) made by Y. Matsuda shows that during growth the ash content of the incisor teeth of rats increases, while the water content decreases, and the content of organic matter shows no marked change. The alterations are continuous in character except for a break which occurs at puberty. The calcium and phosphorus content of the ash does not alter with age, but the magnesium tends to increase. Minor differences are observed between the upper and lower incisors. The action of insulin on normal animals according to E. Grafe, H. Reinwein, and H. Singer (*Arch. Exp. Path. Pharm.*, vol. 119, p. 91) shows that when fragments of liver are taken from an animal after injection of insulin and suspended in Ringer solution, less glycogenolysis is observed than is the case with fragments from the same animal before the injection of insulin. The determination of pepsin in gastric juice according to H. Citron (*Deut. Med. Woch.*, vol. 52, p. 1781) may be accomplished satisfactorily when the pepsin is allowed to act on fibrin, dyed with carmine, and the resulting color compared with that obtained from a standard preparation of known composition. According to A. B. Illievitz (*Journ. Biol. Chem.*, vol. 71, p. 693) the urine from a case of diabetes insipidus on long keeping under sterile conditions in the cold, yielded an ether soluble purple pigment of unknown composition, that was soluble in alkalis, insoluble in acids, showed no characteristic absorption spectrum, and could not be related to indican.

The body temperature and the metabolic rate of the rat according to F. M. Walters (*Amer. Journ. Physiol.*, vol. 80, p. 140) were depressed by breathing carbon monoxide to a degree varying with the carbon monoxide saturation of the blood. His conclusion is therefore that there is a relation between the fall in metabolic rate and the symptoms of poisoning. E. C. Kendall, who had been working on the isolation of thyroxin, reported (*Journ. Biol. Chem.*, vol. 72, p. 213) that he had been unable successfully to apply the method of Harington for the isolation of this important substance from the thyroid gland. He also found the distribution of thyroxin among the various fractions obtained in the process of isolation to be different from that described by Harington. He therefore suggests that the process of isolation may have to be varied according to the place of origin of the thyroid glands employed. The action of tellurium in the treatment of human syphilis has been studied by L. Fournier, C. Levadite, and L. Guenst, who report that when tellurium is administered either as tellurium trioxide, tellurium iodide, quinine tellurium iodide, or as the element in a finely divided condition, it has a marked curative action on human syphilis, but the treatment is complicated by the occurrence of undesirable reactions in certain cases. According to A. Siegler (*Compt. rend.*, vol. 184, p. 954) both normal and syphilitic human sera give a positive Bordet-Wassermann reaction after ultrafiltration through collodion mounted on a nickel filter sheath, the nickel apparently acting as a catalyst. This change in serum in presence of nickel does not take place in a vacuum.

The toxic principle of *Illicium religiosum* has been isolated by T. Q. Chou who describes it (*Chinese Journ. Physiol.*, vol. 1, p. 213) as a white amorphous substance of indefinite melting point. It contains no nitrogen, is soluble in cold water, and is feebly acidic. The substance has been given the name of sikimotoxin and is quite distinct from Eijkman's sikimin. It was found that 0.2 mg. to the gram body-weight is the minimum lethal dose for a cat. R. O. Herzog and W. Jancke found (*Zeit. Physiol. Chem.*, vol. 164, p. 306) that an X-ray diagram for the threads of the Madagascar spider very closely approximates to that of true silk. Hence the two fibres contain the same crystalline constituents. The presence of kerasin is reported in normal ox-spleen by E. Walz (*Zeit. Physiol. Chem.*, vol. 166, p. 210) and with it he finds a substance that gives a violet-red coloration with orcinol and hydrochloric acid in presence of ferric chloride, contains phosphorus, 22.4 per cent galacetose, and agrees in its properties with a substance separated by Thierfelder from brain.

A study on the chemical activity of the spleen by G. B. Ray and B. B. Stimson (*Amer. Journ. Physiol.*, vol. 81, p. 62) shows that small doses of nitrobenzine caused the appearance of methemoglobin in the blood of dogs. By comparative studies on mammal and splenectomized dogs these authors concluded that the spleen plays some part in hindering the formation and hastening the removal of methemoglobin, probably by an active reducing action.

According to an interesting study on the distribution of potassium and sodium in plants by G. Andre and E. Demousey (*Compt. rend.*, vol. 184, p. 1501) the ratio of potassium to sodium shows a preponderance of the former in the older wood of ligneous plants and in the interior of tap roots during the period of growth, but an almost equal distribution during the resting period. This paper gives figures for the distribution of the elements mentioned in beet, in chestnut and in *Tamarix gallica*. R. E. Remington found (*Journ. Amer. Chem. Soc.*, vol. 49, p. 1410) that samples of American tobacco when examined by a micro-Marsh method, contained 0.05 to 0.27 grains of arsenious oxide to the pound. It is accepted that half the arsenic in pipe tobacco goes off in the smoke and half of that in plug tobacco is soluble in water.

Sympathol, which is a new adrenaline-like substance, has been studied by F. Lasch (*Arch. Exp. Path. Pharm.*, vol. 124, p. 231). He finds it to be a methyl-alpha-hydroxy-parahydroxyphenylethylamine hydrochloride with a melting point of 154°. Its pharmacological properties resemble those of adrenaline but there are important quantitative and qualitative differences. According to M. Dye, O. C. Medlock and J. W. Crist (*Journ. Biol. Chem.*, vol. 74, p. 95) the vitamin *A* content of the leaves of lettuces of various modes of cultivation was approximately proportional to their chlorophyll content. A. Sordelli gave a detailed account (*Anal. Asoc. Quim. Argentina*, vol. 15, p. 57) of his study of the preparation of insulin from the pancreas of sheep. It was reported by M. Dorle and W. Liehr (*Biochem Zeit.*, vol. 187, p. 385) that they do not find any relationship between blood-sugar, blood cholesterol, and blood pressure in cases of arteriosclerosis and hypertonia.

General Chemistry. Under this heading are grouped the results of various recent studies of chemical elements and their compounds other than those of carbon, as well as their reactions to physical phenomena. These show a continued interest in this branch of chemistry.

The absorption spectrum of nickel was studied by K. Magrudar (*Zeit. Physik*, vol. 39, p. 562), who obtained the spectra from an under water spark and from the vapor in a carbon tube furnace. He tabulated and grouped the absorption lines and gave a diagram of energy levels. A Japanese chemist, who had been studying overvoltage, reported (*Journ. Fac. Sci. Tokyo*, vol. 1, p. 223) that the overvoltage of hydrogen at electrodes of platinum, gold, copper, or nickel depends to a considerable extent on the previous treatment of the electrode. After anodic polarization the value is a minimum, which is characteristic of the metal employed; with rise of temperature this minimum decreases in a linear manner. Much excellent work has been done during the year on the physical properties of the rarer elements. I. S. Bowen and R. A. Millikan report (*Physical Rev.*, vol. 28, p. 923) that the hot spark spectra of Y iii and Zr iv have been identified and term values tabulated. In yttrium and zirconium the normal position of the electron is in a 4*d* orbit rather than in a 5*s* orbit. E. Murmann (*Oesterr. Chem. Ztg.*, vol. 29, p. 226) reported that in the course of an unsuccessful search for a sixth alkali metal, the cesium line 3861.5 was detected in cigar ash, North Sea water, commercial magnesium chloride, rubidium alum, hay ash, and fungi, but not in cesium alum, potash from beet molasses, and the mother liquors from oxalic acid and lithium salt preparations.

The possible cause of the changes in vapors is discussed by Mrs. F. Langworthy who found (*Chem. News*, vol. 134, p. 20) that when illuminated by a spark the vapor of mercuric chloride appears green, that of mercuric bromide blue, and that of iodide, violet. This she accounts for on the supposition that, as the halogen atom becomes more positive with increasing atomic weight, the violet or more negative rays are more likely to be attracted to its vicinity. Elements in the same group of the periodic table become more positive with increasing atomic weight, and she reaches the conclusion that this increase of positivity is acquired in stages. An interesting discussion on the missing element 87 by G. von Hevesy was published in Denmark in which the author claimed that as only radioactive isotopes of the elements following number 86 (radon) are known, it was improbable that inactive isotopes of the missing element could be discovered. Since this element had an odd atomic number, it was expected that it can be found only as a comparatively short-lived body. Attempts were made to discover by the scintillation method an α-particle from mesothorium-2; the emission of an α-particle by this element (89) would lead to the formation of ilium-87. It was found that, if such a disintegration occurs at all, fewer than 1-200.000 atoms of mesothorium-2 can disintegrate in this way. Trials to find 87 as a β-product of radon, by removing all the known members of the active deposit of 100 millicuries, failed. The author suggested, however, that it might be possible to find an inactive isotope of polonium, and also discussed the possible formation of the element 85. An important study of the separation of metals from the gas phase was made by A. E. Van Arkel who reported (*Chem. Weekblad.*, vol. 24, p. 90) that metals of high melting power of which easily dissociated volatile compounds are known could be obtained in a pure coherent form by heating a filament of the metal in an atmosphere of the compound. The best results are obtained if the compound be prepared in the evacuated apparatus in which the metal is to be deposited: for this purpose an excess of the impure metal is included with the other element of the compound to be employed, which thus acts merely as a carrier to convey the metal from the impure powder to the pure deposit. Titanium, zirconium, hafnium, thorium, molybdenum, tungsten, iron, and nickel are readily purified in this way. By suitable modifications nitrides, carbides, and alloys may also be prepared.

The distinguished Belgian chemist G. Urbain published (*Bull. Soc. Chem. Belg.*, vol. 36, p. 126) a summary of the discoveries which in 1923 led the International Commission to define an element in terms of an atomic number. A study of the density of water vapor by T. Shirai (*Bull. Chem. Soc. Japan*, vol. 2, p. 37) gives a description of his experiments as follows: A sealed bulb containing a weight quantity of water was broken by electrical heating, thus releasing its contents into the enlarged top of a barometer tube, on which the pressure was read. The molecular weight of water so obtained never deviated by more than 0.3 per cent from the theoretical value for unassociated water molecules, over the range 80–140°. An interesting account of the repetition of the work of Noddack, Tacke and Berg (*Berichte*, vol. 60, p. 621) on the occurrence of the manganese homologues of atomic numbers 43, 61, and 75, failed to yield any evidence of the elements 43 and 75 in columbite. The presence of ekamanganese in platinum ores could not be regarded as established. They found no evidence of the existence of element 61, and its presence in cerite they regarded as impossible.

An Italian chemist, O. M. Corbino, finds (*Atti R. Accad, Lincei*, vol. 5, 377) that when copper sulphate solution is electrolyzed using a copper anode immersed in the solution, and an aluminum cathode suspended above the solution in an atmosphere due only to the vapor pressure of the solution, finely divided copper appears in the solution as a suspension. The size of particles increases with the currents. Similar results were obtained with solutions of silver nitrate and gold chloride.

Experiments on the polishing of surfaces were described by J. W. French (*Nature*, vol. 119, p. 527) that show (*a*) when once a group of molecules has been torn from the embrace of its associates, it is practically impossible under forcing conditions to force it back within the region of molecular cohesion, and (*b*) that no considerable rise of temperature occurs such as would be anticipated if the "hill-tops" become fused. According to Lord Rayleigh who had been making a study of the bands in the absorption spectrum of mercury (*Nature*, vol. 119, p. 778), bands allied to, but not identical with, the emission bands previously observed from 3055 to 2697Å. have been obtained in absorption. Closer examination of the diffuse absorption bands as 2345, 2338, 2334, and 2339Å. shows that superposed on this structure is a much finer one of the order of 1Å. The lines 2270 and 2656Å. were not detected in absorption.

A study of the crystalline structure of iodine by A. Ferrari (*Atti R. Accad. Lincei*, vol. 5, p. 582) by means of the X-ray shows that this element has a structure consisting of a rhombic lattice with an elementary cell composed of an orthorhombic parallelepiped containing 8 atoms; *a* 4.760, *b* 7.164, *c* 9.783Å. From an examination of the yellowish-red band spectrum excited in sodium vapor by the passage of a continuous current, H. Schlüler concluded (*Zeitschr. Physik*, vol. 43, p. 474) that the spectrum consists of the resonance series of Na_2, which is excited by the sodium D light and of a Na-series similar to the Lyman-Wittmer H_2 series. G. Renso, who examined a number of organic and inorganic compounds in order to investigate Karl's theory that the origin of triboluminescence is in the impurities of the substances which exhibit this phenomenon, reported (*Gazzetta*, vol. 57, p. 278) that while the results were not entirely conclusive still he believed that triboluminescence occurs in pure substances as he found that potassium bromide when repeatedly recrystallized was characterized by a strong luminescence, which was diminished by the addition of the impurities found in the mother-liquors.

The origin of the auroral green line in the oxygen spectrum has long been the subject of curious investigation. J. C. McLennare, R. Ruedy, and J. H. McLeod adduced parallel evidence (*Trans. Roy. Soc. Canada*, vol. 21, p. 27) to show that in seeking to fit the auroral green line 5577.341Å. observed in the oxygen spectrum into the system of energy levels provided for oxygen atoms "forbidden" as well as "permissible" transitions should receive consideration. According to D. Balarev (*Zeit. anorg. Chem.*, vol. 165, p. 192) the simultaneous precipitation of zinc sulphide with copper sulphide from a fairly strong acid solution by hydrogen sulphide is not due, as has been previously suggested, to the formation of complex zinc sulphide but is a purely capillary effect. It was found by E. R. Washburn (*Journ. Physiol. Chem.*, vol. 31, p. 1246) that creeping occurred only when the solution wet the surface with which it is in contact. Capillary layers between the crystals themselves or more generally between the crust of crystals first formed and the walls of the vessel are responsible for the climbing of solutions, which is prevented by the presence of grease, oil, or paraffin over the surface.

MINERALOGICAL CHEMISTRY. The application of chemistry to geology naturally comes under this heading, and geological surveys always have a chemist on their staffs. The composition of minerals, of rocks, and of building materials is among the subjects that receive the attention of one who is a specialist in this branch of knowledge.

R. W. Lawson in *Nature* (vol. 119, p. 277) found himself unable to agree with Evans' view that an appreciable proportion of the energy liberated by the radio-elements, where they occur as rock constituents, is absorbed in ways other than raising the temperature of the rocks and gives his reasons why this theory should not be accepted. An interesting paper on the chemical formulas of mineral compounds has been published by L. W. Tibyrica (*Nature*, vol. 119, p. 815) in which he points out as the only exceptions to the rule that the chemical formulas of all true mineral species composed of any of the first 21 elements should conform to the equation $M = 2a + 8n$, where M is the molecular number (sum of the atomic numbers) a the number of atoms, excluding hydrogen, n any integer, are the organic minerals, whewellite, oxammite, mellite, and fichtellite.

E. Moles (*Anal. Fis. Quim.*, vol. 24, p. 560) has calculated the percentage of argon by weight in the air from the values for the liter weight of crude atmospheric nitrogen and chemically prepared nitrogen, respectively, using the mixture rule. For the atmosphere at sea level, the percentage of argon is 0.909 or 0.946 if the maximum density of nitrogen is assumed in the calculation. Two new yellow, greenish-yellow, or brownish-yellow minerals of the mosandrite group have been examined by E. M. Bonstedt, K. A. Nenadkevitsch, and I. D. Starynkevitsch-Bornemann (*Bull. Acad. Sci. Leningrad*, vol. 6, p. 118) for which the names rinkolite and lovtcharvite are proposed. Both minerals have a hardness of about 5 and they melt readily in the blowpipe flame and are easily dissolved by acids. A new mineral found in a silver-tin vein in the Animas mine in Chocaya, Bolivia, an analysis of which shows the formula Ag (Sb, Bi) S_2, was announced by L. J. Spencer (*Min. Mag.*, vol. 21, p. 156) for which he proposes the name aramayoite. This author (*Min. Mag.*, vol. 21, p. 149) also announced a crystalline mineral from Tsumeb, Southwest Africa, to which he gave the name schultenite and which on analysis yields the formula $PbHAsO_4$. W. Fuchs and G. Landsmann reported (*Berichte*, vol. 60, p. 246) the discovery of a new organic mineral from Mähren, Germany, which has a hardness of 1.5-2, a specific gravity of 1-1, a saponification value of 42.5, iodine value of 32.2, and is a polymerized resin to which they gave the name of walchowite. A bluish black massive mineral with a metallic lustre and a hardness of 3. was found in Colorado by W. P. Crawford to which he gave the name weissite. It has a composition corresponding to the formula Cu_5Te_3. J. B. Schrivenor and J. C. Shenton reported a new mineral that consists of honey yellow orthorhombic crystals and has the molecular formula of (ThO_2,Ce_2O_3,ZrO_2). H_2O $2WO_3$, H_2O to which they give the name thorotungstite. It came from the Kramat Pulai Mine in the Federated Malay States.

ORGANIC CHEMISTRY. The chemistry of the carbon compounds continued to be the object of extensive investigations as shown by the great output of the results of researches made in European laboratories. Something of the progress in this branch of chemistry will be found in the following paragraphs.

Two new alkaloids were isolated from yohimba bark by P. Karrer and H. Salomon (*Helv. Chim. Acta.* vol. 9, p. 1059) ψ yohimbine $C_{21}H_{26}O_3N_2$ differing only from yohimbine in its crystalline form and its melting point of 264–265°. The second one was corynanthine $C_{20}H_{22}O_3N_2(OME)_2$ and was isolated as its hydrochloride with a melting point of 205°. In distinction from ψ yohimbine it is soluble in chloroform. I. M. Kothoff (*Pharm. Weekblad.*, vol. 63, p. 1453) found that small proportions of chlorine did not effect Deniges reaction for citric acid in aqueous solution. If however other organic acids are present, chlorides interfere strongly. The test can be carried out without removing chlorides if manganous sulphate be added. It was reported by O. Achmatonicz (*Rocz. Chem.*, vol. 6, p. 804) that bornyl acetate, prepared in presence of sulphuric acid or zinc chloride, yielded on hydrolysis a new alcohol, apparently a space isomeride of borneol, termed endoborneol, with a melting point of 186°, and a melting point of 203–204°, which on oxidation yielded camphor. Its ethyl ether with a boiling point of 83–87°, its phenylurethane, with a melting point of 138–139°, and its benzoate with a melting point of 186–187° were also described. For the rapid determination of opium in stomach contents, E. R. Dorey (*Analyst*, vol. 52, p. 26) recommended that the coloration produced by adding hydrochloric acid, mercuric chloride solution, and ferric chloride solution to the filtered liquid be compared with that of a similarly treated standard solution of the kind of opium most likely to have been taken. It was found concerning the crystallization of sucrose, by I. A. Kukharenko and M. E. Verkentin (*Zapiski* (Russia), vol. 3, p. 244) that at a supersaturation lower than the critical (which is 1.027, 1.031, and 1.030 for 0.5. 1.0, and 2.0 per cent of calcium chloride respectively) calcium chloride is a negative paralyzer, the speed of crystallization increasing with the concentration of calcium chloride in the mother liquor. At supersaturation above the critical point, calcium chloride is a positive paralyzer. An investigation of suggested types of linkings between amino acids based on a study of the stability or otherwise of collagen, gluten from gelatine, keratin, and peptone towards pepsin and trypsin was made by W. S. Sadikov. He found (*Biochem. Zeit.*, vol. 179, p. 326) that collagen was labile to pepsin, stable to trypsin; gluten was labile to both pepsin and trypsin; while peptone was stable to pepsin and labile to trypsin. He suggested that pepsin attacks ether, ester, or anhydride linkings, while trypsin acts on peptide linkings. In continuation of their studies on nitration P. S. Varma and C. K. Menon reported (*Journ. Indian Chem. Soc.*, vol. 3, p. 328) that in their work on the nitration of naphthalene, they found that the maximum yield (86 per cent) of *a* nitronaphthalene obtained by using a mixture of nitric and sulphuric acids was also produced when plaster of Paris, quicklime, or phosphoric acid is used as a dehydrating agent in place of sulphuric acid, although they are effective in the nitration of benzine. The boiling point curve for mixtures of naphthalene and *a* nitronaphthalene was plotted, and the percentage of the naphthalene in the product determined by this means.

A. Blanchetière reported (*Compt. rend.*, vol. 184, p. 405) that he found when commercial peptones formed by peptic and tryptic digestion of proteins were fractionated by formation of carbamates 14–33 per cent of the total nitrogen content of the peptones might be considered to be present as diketopiperazines. The formation of a new gallactopene is announced by F. Mauthner (*Journ. für Prakt. Chem.*, vol. 115, p. 137) who finds that when 3:4:5-trimethoxyacetophene is treated with aluminum chloride in chlorobenzene solution it yields 3:4:5-trihydroxyacetophene, which has a melting point of 187°–188°. N. Alders, who examined a series of samples of sericin prepared from raw silk by an improved method, found that they had an ash content of 3.9 per cent, gave the biuret, xanthoprotein and Miller reactions but not the Fehling test, that the total nitrogen was 15.9 per cent, the monoamine-nitrogen 12.59 per cent, nitrogen of bases, 1.51 per cent, acid amide nitrogen 1.68 per cent, and contained approximately tryptophan 1 per cent, tyrosine 7 per cent, cystine 1 per cent, orginine 5 per cent, and lysine 1 per cent.

M. Wagenaar found (*Chem. Weekblad.*, vol. 24. p. 258) that when a drop of 0. 1 N-iodine in potassium iodide solution was warmed with one drop of the sample to be tested and a quantity of 30 per cent acetic acid, and a tiny drop of 3 per cent permanganate solution added, crystals of iodacetone separated at once if citric acid were present. He found further that no reaction was given by tartaric, malic, succinic, lactic, or oxalic acids. Of considerable interest was the survey made by L. O. Wright (*Ind. Eng. Chem.*, vol. 19, p. 750) of the various methods proposed for the detection of methyl alcohol in the presence of ethyl alcohol. He recommended the method by oxidation with potassium permanganate and detection of the formaldehyde formed by means of rosaniline-sulphurous acid reagent which can be used for quantitative work, and he describes a suitable standardized procedure. Glycerol, and pectin which give a similar color reaction, may be eliminated by distillation.

It was found by T. Moore and S. G. Willimott that brown resinous substances were produced when cholesterol was melted or heated in aqueous colloidal solution. At the same time they reported (*Biochem. Journ.*, vol. 21, p. 585) that chromogenic properties similar to those of oxycholesterol were acquired. They also reported that Robertson's observation on the stability of cholesterol towards oxidation when aërated as an aqueous colloidal solution at the boiling point in absence of brain extract as a catalyst (this is, without the production of chromogenic substances) was not confirmed. Pure adrenaline, according to T. Vacek (*Biochem. Journ.*, vol. 21, p. 457), when dissolved in distilled water takes up only minute quantities of oxygen in the dark, while on the other hand when exposed to visible light, and much more so when exposed to ultraviolet radiation, it takes up oxygen freely. The compound turns pink in the process of oxidation, the intensity of the color being commensurate with the amount of oxygen taken up. Different preparations of adrenaline show different tendencies to oxidation, pure adrenaline in distilled water being more oxidizable than adrenaline hydrochloride.

J. H. Northrup who had been studying the kinetics of osmosis found (*Journ. Gen. Physiol.*, vol. 10, p. 883) that by combining the laws for osmotic pressure and rate of diffusion, an expression is obtained for the rate of osmosis, and this opinion has been verified experimentally in the case of a collodion membrane containing a solution of egg albumen or of gelatin. The results obtained by M. Bridel and C. Aagaard (*Compt. rend.*, vol. 185, p. 147) with enzyme preparations made from *Aspergillus niger* showed that a preparation that acts slowly on sucrose may hydrolyze melezitose rapidly, and vice versa. The non-identity of the enzymes that attack sucrose and melezitose thus demonstrated disproves Kuhn and von Grundherr's view that melezitose is a compound of sucrose and the nature of the non-reducing *d*-fructose united with the dextrose remains to be determined. According to Rufferd (*Journ. Amer. Chem. Soc.*, vol. 49, p. 1845) the preparation of Grignord reagents was often facilitated by the addition of a small quantity of anhydrous aluminum bromide, freshly prepared by heating aluminum with bromine. The terms oses, osides, homosides, and heterosides were proposed by G. Bertrand (*Bull. Soc. Chem. Biol.*, vol. 9, p. 854) in place of glucoses, glucosides, homoglucosides, and heteroglucosides, which were suggested by the International Commission for nomenclature in biological chemistry. L. von Itallie and A. J. Steenhauer found vanillin and piperonal to be valuable reagents for alkaloids. They published in tabular form (*Pharm. Weekbald.*, vol. 64, p. 925). the color reactions given with the commoner alkaloids by these reagents. The most distinctive colors are given by morphine, codeine, apomorphine, aspidospermine, and veratrine.

BIBLIOGRAPHY. Among the larger reference books that were published during the year were the seventh volume of *A Comprehensive Treatise on Inorganic and Theoretical Chemistry* by J. W. Mellor; the fifth edition in two volumes of *Recent Advances in Organic Chemistry* by Alfred M. Steward, and the tenth volume of the fourth edition of Beilstein's great *Handbuch der Organischen Chemie.* Other important works include *A Guide to the Literature of Chemistry* by E. J. Crane and A. M. Patterson; *Old Chemistries* by Edgar F. Smith; *Essays on the Art and Principles of Chemistry* by Henry E. Armstrong; *Introduction to Physical Chemistry* by Meyer Bodansky; as well as the following special treatises: *Equilibria in Saturated Salt Solutions* by Walter C. Blasdale; *Pyrometry* by William P. Wood; *Flame and Combustion in Gases* by William A. Bone and *A System of Qualitative Analysis for the Rare Elements* by Arthur A. Noyes, and William C. Bray.

For full information concerning the books of the year, consult the "Autumn Review Number" of the *Journal of the Society of Chemical Industry* for October 28, pages 981–994.

CHEMISTRY, INDUSTRIAL. The application of the value of chemistry in its relation to the arts and industries is becoming so extensive that more and more the service of a chemical engineer is regarded as essential in every great commercial undertaking, and it may be well said that the progress in the development of industrial chemistry had never been greater than during the year 1927.

ORGANIZATIONS. The spring meeting of the American Chemical Society was held in Richmond, Va., during April 11–16. The registration showed 1317 names, and nearly 300 papers and addresses were presented, including an evening address on "A Chemical Concept of the Origin and Development of Life" by Victor C. Vaughan. He pointed out that the difference between living and dead matter is that the living matter trades energy with its environment, and the character of that environment determines the form of this living protein matter. So long as the environment remains unchanged the characteristics of this living matter are unchanged. In other words there is no life save in proteins. New sections designated as Porto Rico, Northern Ohio, and Princeton Sections were organized. Richard Willstätter was made an honorary member and Wilhelm Ostwald and Walther Nernst were restored unanimously to that class. The opening of a new chemical laboratory at the University of Richmond with appropriate addresses was a feature of the meeting. The autumnal meeting was held in Detroit, Mich., during September 5–10, at which the registration showed 1618 members and guests present. In addition to the reading of papers, and the usual routine business and entertainments, the establishment of a South Carolina Piedmont Section was announced. The presidential address was on "Reflections" and a public address by Charles F. Kettering on "The Functions of Research" was delivered. During the year George D. Rosengarten of Philadelphia served as president.

National Institute of Chemistry. There was authorized at the spring meeting of the American Chemical Society a National Institute of Chemistry to be held under the auspices of the American Chemical Society and to serve as a clearing house for international developments in chemical science and a training school for chemists, and at which world leaders in chemistry would deliver lectures and direct conferences and courses. A committee was appointed in charge of the Institute consisting of Gerald L. Wendt, Dean of the School of Chemistry and Physics, Pennsylvania State College; Prof. Frank C. Whitmore, head of the Department of Chemistry, Northwestern University; Willis R. Whitney, director of the Research Laboratory of the General Electric Company, Schenectady, N. Y.; C. M. A. Stine, chemical director of E. I. du Pont de Nemours & Co., Wilmington, Del.; C. E. K. Mees, director of research and development, Eastman Kodak Company, Rochester, N. Y.; and Frederic W. Willard, Western Electric Company, Chicago. A series of 22 conferences were held during July 4–30 at Pennsylvania State College, at which a wide range of subjects were discussed by various authorities. The foreign speakers included Dr. Hans Tropsch of Germany, Dr. Eric K. Rideal of Cambridge, England, Dr. J. C. Drummond, of London, and others.

Society of Chemical Industry. The 46th annual meeting of this society was held in Edinburgh during July 4–9. During the year 254 members were elected, bringing the present membership up to 4716 as against 4802 last year. The society's medal was presented to Lieut.-Col. G. P. Pollett, D.S.O., in recognition of his conspicuous services to applied chemistry. In addition to the retiring address on "Industrial Chemistry and Progress in Medicine" by President F. H. Carr, Colonel Pollett gave a lecture on "The Development of the Synthetic Nitrogen Industry in Great Britain." The treasurer reported a balance of £540 of receipts over the expenditures, a much improved condition over last year. President Carr was reëlected and E. W. Smith succeeded E. V. Evans as honorary treasurer, and E. Frankland Armstrong was chosen as secretary in place of H. Levinstein, retiring. New York was selected as the meeting place for 1928. Visits to important industrial works as well as excursions to historic places as usual were attractive features of the meeting.

London Chemical Society. The annual meeting of this organization was held in London on March 24. The number of fellows elected during the year was 242 bringing the total number up to 4093 as against 4083 in 1926. The address of the President, Prof. H. Brereton Baker, was on "Experiments on Molecular Association." President Baker was continued in office.

The eighth conference of the *International Union of Pure and Applied Chemistry* began in Warsaw, Poland, on September 5. More than 100 chemists were in attendance. Prof. Ernst Cohen of Utrecht, Holland, president, called the first meeting to order. The work was largely devoted to chemical nomenclature and thermochemistry. Numerous American delegates were present, but neither Germany nor Russia was represented.

National Exposition of Chemical Industries. The 11th occurrence of this valuable factor in the development of the chemical industries was held in the Grand Central Palace in New York City during September 26–October 1. There were 372 exhibitors, including several from Germany, admitted for the first time. Conspicuous among these exhibits was one of methanol or synthetic wood alcohol which is now being manufactured in the United States at a lower cost than the Germans can produce it. It was announced that the same process conducted under slightly different conditions would produce synthetic gasoline. In the possession of plants capable of producing methanol the United States has a guarantee against a fuel famine if her oil resources should ever become exhausted. The raw material used in the manufacture of methanol, and which could be employed for making artificial gasoline, is plentiful and cheap. It is simply air. The manufacture of methanol was begun in the United States within the year. Methanol was first manufactured in Germany and began flooding the American market in 1925 to the discomfiture of the wood distillers, whose process was much more costly. American chemists however found a method of making methanol more economical than that of the Germans, because they produce methanol as a by-product of other valuable materials. One company makes methanol in the course of manufacturing synthetic ammonia. The oxygen is taken from the air by being passed over coke. The oxygen and the carbon of the coke form carbon monoxide. The remaining nitrogen is combined with hydrogen to produce ammonia. The carbon monoxide formerly was waste product; now it is forced into combination with hydrogen by means of a catalytic agent whose nature is kept secret. This combination is methanol. Another company engaged in making butanol, a solvent for lacquers and the like, also is manufacturing methanol. Butanol is made by the distillation of fermented corn. The products of this distillation are butanol, grain alcohol, and acetone. A gas consisting of a mixture of carbon dioxide and hydrogen is given off, and by the use of a catalytic agent they are united to form methanol.

Medals. On January 14, the Perkin medal of the American Section of the Society of Chemical Industry was conferred on John E. Teeple for "significant scientific, technical and administrative achievements, particularly the economic development of an American potassium industry at Searles Lake, California." On March 11, the William H. Nichols Medal of the American Chemical Society was presented to Dr. Roger Adams, Professor of Organic Chemistry and Head of the Chemistry Department, University of Illinois, for his work on "Acids of Chaulmoogra Oil and Related Compounds." This medal is awarded annually for the best article tending to stimulate original research in chemistry, that appeared in a publication of the American Chemical Society within three years of its award. On May 11 the medal annually awarded by the American Institute of Chemists to the chemist whose work has been of outstanding value to science was presented to Prof. Lafayette B. Mendel who fills the chair of physiological chemistry at Yale University. On May 27, the Willard Gibbs Medal of the American Chemical Society was conferred on Professor John J. Abel of Johns Hopkins University in recognition of the scientific achievements by which he has become accepted as the "chief of the forces of science in creating human happiness," conspicuously shown by his isolation of adrenalin and insulin. On

March 24 the Longstaff Medal of the London Chemical Society was presented to Robert Robinson in recognition of his studies on the constitution of and synthesis of the coloring matter of flowers and also for his investigations of the mechanism of reactions in organic chemistry; and on November 8, Prof. Arthur A. Noyes of Pasadena, Calif., was awarded the Davy medal of the Royal Society of Great Britain.

Chromium. The prolongation of the life of mechanical parts subject to unusual wear of temperature and the production of a permanent decorative effect are the main objects of the use of chromium plating in automobile manufacture. The method followed in applying the chromium surface is as follows: The first step is to produce as smooth an undersurface as possible by plating the parts with copper and nickel and buffing them to a high finish. A steel base, when coated with nickel-plating 1-1000th inch thick and chromium plated, will withstand a salt spray test for 80 to 100 hours, whereas nickel-plating alone of this thickness will stand only 15 hours' test. Chromium does not tarnish under ordinary exposure to weather and the cost of chromium plating, even over copper and nickel, is not excessive. The chief material used in chromium plating is chromium trioxide which contains about 50 per cent of chromium metal. High current densities are used, with very short immersions in the plating baths. Hardness of the chromium can be controlled, and it can be deposited soft enough to be buffed, but the greatest lustre can be obtained by depositing it in its bright or hard state. Light coatings applied over nickel or copper and nickel are extremely hard, and will hold up under ordinary usage on car parts for very long periods.

The expanding uses for chromium emphasize its growing importance in the industrial world. During the period from 1830 to 1870 the United States supplied the greater part of the world requirements, chiefly from Maryland. Leadership in world output passed in 1870 from the United States to Turkey, which was until about 1908 the leading producer. From 1908 New Caledonia and Southern Rhodesia ranked about equally as the two major sources of supply. Secondary sources are Cuba, Greece, and Russia. World production of chromite, the ore from which the metal is derived, was approximately 360,000 tons in 1926. This compares with a wartime maximum of 283,000 tons. In 1926 the United States took 215,000 tons, or about 60 per cent of the estimated world output and more than consumption.

Copper. A method for the agglomeration of the slime and fine particles in leaching of ores, discovered at the Southwest Experiment Station of the U. S. Bureau of Mines at Tucson, Ariz., was announced in August. It is believed to hold promise of wide application in the metallurgy of copper and other ores. Millions of tons of tailings from copper concentrators, too low grade for treatment by other processes, offer possibilities of successful treatment by this method. With the newly discovered method the slime and fine particles can be agglomerated and the state of agglomeration maintained in such a manner that masses of ore containing finely divided material can be made permeable to downward trickling leaching solutions, provided open drainage is maintained at the bottom and that the solutions are not allowed to pool on the surface. Experiments have shown that the increase in possible percolation rate produced by agglomeration with open drainage is between 5 and 40 times, depending upon the character and proportion of the slimes present. Also by this method advantage can be taken of oxygen from the atmosphere entering into the chemical reaction of leaching. The principle is also of value in vat leaching, as it tends to prevent channeling of the solutions through the ore. The development of this principle should make it possible to treat finely divided ore or tailings by heap-leaching principles, and thus avoid costly tank construction.

Gold. According to a press dispatch from Paris dated May 21, Jollivet Castelot of Douai, France, reports that his process of producing gold synthetically is commercially profitable. With 6 grams of silver, 2 of sulphur of antimony, 1 of orpiment and 1 of tin, he claimed to have produced 10 milligrams of gold. He melts the metals, heating them to 1100 degrees Centigrade, and a complicated process ends in precipitating the gold. The addition of tin had improved his earlier process. He claimed that, besides gold, almost all the original quantity of silver is recoverable.

Iron. A synthetic process for refining iron has been experimentally tried in Mahoning Valley as a substitute for puddling. Under the new system, called the Ashton process, the plant equipment consists of a 1½ ton electric furnace, a cupola furnace for melting slag and a 500-ton hydraulic press for squeezing the blooms. The slag is run into an unlined cast iron mould standing upright on a car and the iron is then poured from a bottom-pour ladle, falling 6 or 7 feet before entering the slag. The molten metal has a fusion point of about 2730° F. while the slag fuses at about 2100. When the molten iron is pouring into the slag, enough of the gas in the metal is released to cleanse the iron thoroughly. The wrought iron produced by this process, it is said, has excellent quality and possesses all the characteristics of hand-puddled iron. The new process if successful will entirely in time replace the old hand process.

Molybdenum. The U. S. Bureau of Mines published in February descriptions of two new leaching methods for the recovery of molybdite from ore that had been carefully tested by their experts and are believed to have commercial possibilities. In one of the methods tested the procedure is to extract the ore with hot soda solution, acidify with sulphuric acid, add a small amount of sodium acetate and digest with lead sulphate. Molybdenum is completely precipitated as lead molybdate, which can be converted into molybdenum trioxide. In the other process the ore is extracted with warm dilute sulphuric acid and the free acid neutralized with scrap iron. Molybdenum is completely precipitated as hydrate of molybdenum dioxide nearly pure. By treating the hot roasted ore with chlorine practically complete separation of the molybdenum from all other ore constituents is obtained in one operation. The distillate is quite pure and is easily converted to molybdenum trioxide or calcium molybdate. The consumption of chlorine need not be heavy, and the regeneration of chlorine for repeated use seems possible. Formerly molybdenum was added to steel in the form of ferro-molybdenum. At present, however, most of the molybdenum used in steel is added in the form of calcium molybdate; reduction and combination as alloy result from the contact of the molybdate with the molten steel. This change the bureau believes marks an important economy in the production of molybdenum alloys. The bureau has also investigated the dielectric separation process, an undeveloped method which seems to have limited possibilities.

Helium. Of considerable interest is the fact that on July 25 a helium plant in Dexter, Kansas, the second of its kind in the world, was inaugurated. Although a private concern, its entire output was contracted to the United States government for use in lighter-than-air craft. The Dexter helium field, which covers a considerable area in the vicinity of Dexter, was said to be the richest in the world. The only other helium plant was one at Fort Worth, Texas, operated by the United States government. The natural gas from the wells in the Dexter area contains such a high percentage of helium that it is not usable for heating or cooking.

Hydrogen. Much interest is always shown in information concerning the transmutation of metals and very early in the year detailed reports descriptive of the experiments of Professors Paneth and Peters of the University of Berlin were available in which was described how they had derived helium from hydrogen by means of palladium. If the conclusions of these German chemists are correct then hydrogen atoms condensed by palladium have also the ability to unite with one another in groups of four, which constitutes the helium molecule. A stream of hydrogen gas was passed over palladium in the colloidal state, in which form the maximum amount of surface is exposed, and after 12 hours of absorption the main lines of the helium spectrum were detected. As longer time elapsed the lines increased in intensity. It would require an enormous length of time to produce a sufficient quantity of helium to be isolated and analyzed, but by using an extremely delicate spectroscope the amount of helium formed artificially by this process was estimated to be from one to ten thousand millionths of a cubic centimeter. The transformation of hydrogen into helium, if it can be accomplished, would theoretically involve a loss in weight of eight-tenths of 1 per cent. The matter so destroyed would be transformed into energy and pass off as rays of light and heat. Such an annihilation of energy would produce an enormous amount of heat.

In March Dr. G. B. Kistiakowsky, an International Education Board Research Fellow in Chemistry experimenting in the chemical laboratory of Princeton University, announced his belief that he had disproved the claim that helium can be produced from hydrogen in the laboratory. In commenting on Dr. Kistiakowsky's research, Prof. Hugh S. Taylor explained that whatever helium was observed during the experiments could be attributed to the minute leakage of air into the apparatus. The results of the experiments in Princeton were made known to Professor Paneth and he accepted them, since in his later work he attributed the presence of helium in his apparatus to the asbestos used as a carrier for the palladium catalyst. No asbestos was used in the Princeton experiment.

Nitrogen. The United States which in 1912 had no plants for the fixation of atmospheric nitrogen, in 1927 had seven synthetic ammonia installations with a combined capacity of about eight tons a day. While none of this output was finding its way as yet into agricultural use, it was having the indirect effect of forcing additional quantities of by-product ammonia into the fertilizer market. Projected plans for the expansion of the industry, according to reports issued by the Department of Agriculture, indicated that before many years the products of atmospheric fixation will be competing directly in the United States with other sources of fertilizer nitrogen. In the synthetic-ammonia process, the method of atmospheric nitrogen fixation, in which practically all commercial effort in the United States is concentrated, purified hydrogen and nitrogen gas are made to combine at high pressure and temperatures so as to form ammonia. The ammonia thus obtained is readily transformed into salts suitable for use as fertilizer. Fixed nitrogen because of its limited occurrence in nature, presents the greatest problem in the maintenance of soil fertility. Nitrogen from the air is the logical ultimate source of supply, since free nitrogen comprises four-fifths of the air. The development of atmospheric nitrogen fixation promises greatly to increase the world's supply of nitrogen and incidentally to promote improvement in the production of fertilizer materials. Already better and more concentrated fertilizer salts are being produced and marketed as a result of the construction of synthetic nitrogen plants.

Steel. In January a new process for making a form of case hardened steel known as "nitralloy" was demonstrated at the Ludlum Steel Company's plant in Watervliet, N. Y., and the problem, which was solved in the research laboratories of the Krupp works at Essen, Germany, and of Aubert and Duval Frères of France, was to obtain the required surface hardness in a commercial and practical way while at the same time maintaining accuracy of design and a surface unimpaired by the process. The result has developed a process which can be carried out at a remarkably low temperature, and the ultimate hardness is obtained without the necessity of further heat treatment and the consequent deformation, distortion, and breakage often experienced in this necessary part of the case hardening process. The new process of "nitriding" (or nitrifying) is based, as in the case of carbon case hardening, on the phenomena of diffusion, but, instead of carbon, nitrogen is allowed to penetrate the surface of the finished metal to be hardened which must be a steel of suitable analysis. The process of "nitriding" is so conducted that a current of ammonia passes over the metal previously placed in vessels of suitable shape, or design. A temperature not exceeding 55°C. is used and the time required is based upon the depth of case desired. Advantages claimed for the new steel are that clean surfaces are assured and the metal leaves the furnace with no tension. There is no warping. The shape of the metal remains intact. The metal thus treated is not subject to breakage and the high percentage of waste is eliminated. The finished articles are machined before "nitriding" is done. Even polishing takes place before processing.

Announcement was made in February of the perfection of a new steel, from 10 to 50 times as durable as the ordinary product, by the Crucible Steel Co. of America.

Sponge Iron. In the Year Book for 1924 (p. 149) reference was made to preliminary investigations undertaken by the U. S. Bureau of Mines in the great value of this product. *Bulletin* (*No. 270*) affords the following additional information on the subject: Sponge iron will precipitate copper, lead, and numerous other metals from solution. The reaction takes place more quickly than when a massive form of iron, as steel scrap or pig iron, is used as a precipitating reagent, and thus plant capacity is proportionately enlarged. Sponge iron is likely to be increasingly important in the hydrometallurgy of low-grade copper and complex lead ores; its production insures a permanent and reliable source of metallic iron—a matter of much importance in view of the small supply of scrap iron and the distances that separate most copper and lead mines from iron-producing centres. It is conceivable that the future success of some large-scale leaching and precipitating processes for copper and lead ores may depend upon a supply of cheap sponge iron. In some chemical processes finely divided metallic iron is used as a reducing agent, and iron oxide is obtained as a by-product. This oxide could be converted into sponge iron and used again in the reduction process. In regions remote from iron and steel producing centres, where coke is expensive and electric energy cheap, sponge iron made cheaply from iron ore and low-grade coal can probably be converted in the electric furnace into iron and steel that can compete with the imported products. The fact that both electric melting and the production of sponge iron can be conducted economically on a small scale makes such a process particularly advantageous in communities that do not consume much iron or steel. Electric furnace processes, being inherently expensive, are not advocated for the manufacture of iron and steel except where conditions are unusual. Other uses of sponge iron will probably be developed once production has been established on a large scale. Some experiments have been made with respect to the use of sponge iron for the production of hydrogen from steam, the iron oxide formed in the process to be converted to sponge iron.

Studies in Petroleum. The programme of research mentioned in the Year Book for 1926 (p. 158) was initiated by John D. Rockefeller who in November, 1925, proposed in a letter to Robert L. Welch, General Secretary of the American Petroleum Institute, to provide a fund of $250,000, this sum to be made available in annual installments of $50,000 each over five years. The fund is administered by a committee consisting of Mr. Welch, Walter C. Teagle, president of the Standard Oil Company of New Jersey, and K. R. Kingsbury, president of the Standard Oil Company of California. In January, 1926, the Rockefeller fund was supplemented by a similar amount provided by the Universal Company. Since the undertaking is planned to be the most exhaustive of its character ever attempted in the petroleum industry, it has proceeded slowly. The American Petroleum Institute obtained the coöperation of the National Research Council of Washington which appointed in 1926 a Central Petroleum Committee of which Dr. James F. Norris, Professor of Organic Chemistry of the Massachusetts Institute of Technology, became chairman. The committee recommended 31 projects in fundamental research, covering in the broadest manner the geology, physics, and chemistry of petroleum. Of these projects 29 have been assigned and the work already begun in the laboratories of various universities and scientific institutions.

Synthetic Gasoline. Reference was made in the Year Book for 1926 (p. 159) to the invention of a synthetic gasoline in Germany by Franz Fischer. In August the additional announcement was made that the Bergius process for producing crude oil and gasoline had been perfected in the experimental plant in Merseberg, so that the production of an artificial gasoline was "declared to be a practical undertaking." It was confidently predicted by conservative authorities that before 1928 fully 20 per cent of Germany's consumption of motor fuel would be supplied from this source. It was also said that the Standard Oil Company of New Jersey had concluded negotiations with the German Dye Trust for "the mutual use of processes under certain patent rights" in anticipation of future needs for a synthetic motor fuel. Later announcements were that French scientists had discovered a process of making gasoline synthetically. It was well known that Patart and Audibert had long been at work on this problem in France.

Other reports from Paris showed that two French chemists, Prudhomme and Houdry, after long investigation and experiment had solved the problem of making gasoline from lignite in commercial quantities. It was claimed for their discovery that from 20,000,000 tons of lignite a year they will be able to manufacture within ten years at least 1,000,000,000 liters of gasoline yearly and 600,000,000 liters of coarser oil, which will meet at least half the consumption of France.

A press report from Lisbon, Portugal, in August told of the invention of a substitute for gasoline, which may solve the problem of a concentrated fuel for long-distance aviation, by Ramon Ribeiro, a Portuguese engineer. Trials of the substance, said to have been successful, were carried out at a military airdrome, when the fuel, which it is said has 80 per cent greater efficiency than gasoline, was used in motorcycles.

A press telegram from Frankfort-on-Main, Germany, dated October 8, announced that satisfactory progress in the production and marketing of its synthetic benzine was reported to the executive board of the German Dye Chemicals Corporation.

Motor Fuel. According to a report to the Department of Commerce by the U. S. Trade Commission in Rome, chemists in Europe were seeking a method of substituting for the imported motor fuel some product of the available natural resources. In Milan, Italy, serious efforts to utilize the lignite deposits in the extraction of oil by the cracking process had been made. The technical possibility of obtaining liquid fuel from coal had long been known, but only recently had the production of a sufficient amount of fuel to overcome the cost of raw materials been demonstrated. As the consumption is steadily increasing, the only apparent way to reduce imports of gasoline is to find some agent to mix with it for the production of an equally good carburetant. France, with the same problem, has decreed that 10 per cent native ethylic alcohol must be added to gasoline. In Italy a decree was issued in June, 1926, ordering a prescribed percentage of denatured alcohol to be mixed with gasoline used for automobiles. Its enforcement was postponed to Jan. 1, 1927, but so far the amount of alcohol to be used has not been specified. Technically it has been ascertained that alcohol can be mixed with gasoline as a motor fuel without necessitating changes in motors or carbüretors, but an economical production of sufficient alcohol to be used generally for this purpose is still a subject of discussion.

A series of experiments were carried on during the year by the Purdue University engineering experiment station regarding the carburetion of heavier fuels. These experiments were conducted with kerosene and other fuels. Results of the experiments have been published in a bulletin issued by the station, which presents data on the carburetion of kerosene and provides additional information concerning the effect of fuel volatility on the carburetion problem. Its purpose also is to show how an engine operating on kerosene reacts to variations in the strength and temperature of the mixture, to point out the optimum temperature for satisfactory performance and to specify the correct mixture ratios for economy and power.

In September a press statement was made by the U. S. Bureau of Mines that three chemists had been experimenting with artificial production of oil—David W. Smith, J. D. Davis and D. A. Reynolds—and had produced fuel from water gas with the acid of different catalysts. The methods used had hardly been commercially practicable, although the experiment was considered a success as a laboratory test. The stimulus that started them to work on artificial petroleum was the secrecy surrounding the catalysts used by oil making chemists, particularly the Germans. So these three government chemists, in the laboratory of the Bureau of Mines set to work to discover just what catalysts could be used to make artificial petroleum. They tried six different catalysts, all of them mixtures of metals in a finely divided state, exposing a great deal of surface to the action of the gases. The most effective catalyst was one made up of metallic cobalt and manganese oxide, with a small amount of metallic copper which produced from water gas a mixture of hydrocarbons, ranging from the simple gaseous forms to those forming a clear, oily liquid. Another catalyst, consisting of cobalt, uranium, and copper brought down a substance resembling white vaseline.

ANALYSIS OF CRUDE OILS. The method of analysis adopted by the Bureau of Mines for its surveys of crude petroleums is a modification of the Hempel distillation method. It involves the distillation of a sample of crude oil under carefully controlled conditions that can be duplicated readily, and the subsequent examination of the series of successive fractions thus obtained. In addition, the gravity, color, viscosity, pour point, and the sulphur are determined. In describing a crude oil reference is often made to its supposed base. It would seem that the word "base" is used much as it is in pharmaceutical work. For example, the "base" of an ointment or salve is the fatty material used as a vehicle or carrier for the active medicinal principles. Many of the pioneers in the petroleum industry conceived of crude oil as consisting of a semi-solid non-volatile "base" and a volatile portion which could be distilled off. Many crude oils when chilled slowly will deposit a waxy material, and this fact may explain why these oils were classed as having a "paraffin base." Historically, it happened that the oils first discovered in this country were mostly of this kind, and it was only when the oil industry developed in California and along the Gulf Coast that oils were found that contained no wax but which apparently did contain asphaltic material. These oils became known as "asphalt base" oils, although the more descriptive term "naphthene base" is sometimes used in place of "asphalt base." Oils that cannot be assigned to the "paraffin" or "naphthene" groups are classed as "intermediate-base" crudes, which in general resemble "paraffin-base" crudes much more than they do "naphthene-base" crudes. It would seem that a fourth type of crude exists that resembles a true "naphthene base" crude except that it contains a small amount of waxy material, which has been given the name "hybrid-base" crude. It is often assumed that the gravity of a crude oil is a fair measure of its character. However, the gravity of a naphthene-base crude is much heavier than that of an intermediate or paraffin base crude of the same general quality, hence gravity taken alone is not sufficient to establish the identity of a crude oil. The physical appearance of a crude is indicated in the analysis not only by the gravity but by the color, the pour point and the viscosity. The color of a crude oil may range from a very light yellow up to a brilliant brownish black. For oils that are transparent when viewed in a four-ounce bottle by transmitted light the Bureau of Mines uses the National Petroleum Association color scale. Most oils however, are opaque when viewed in this way, and the color by reflected light is reported as follows: If the oil is clear in color it is reported as "green," "dark green," or "greenish black"; if it has a brownish or muddy appearance it is reported as "brownish-green" or "brownish-black." In making an analysis of a sample of crude oil the percentages of free water and emulsified water should be recorded. The percentage of water present is of interest to oil producers and purchasers, but its presence has no bearing on the character of a crude oil.

SYNTHETIC LUMBER. From time to time processes for the utilization of refuse wood chips have been published. The Science News Service of Washington issued the following in June of 1927: The use of steam for exploding wood chips into fibre is the ingenious process at the basis of a new method for producing synthetic lumber from sawmill waste. This development promises to eliminate a waste in wood which in the past has been considerable. The fundamental process consists in subjecting chips of a uniform size to a steam pressure of 800 pounds for four or five seconds. Then by an instantaneous release of the pressure the chips are made to explode into millions of fibres. To form boards the exploded fibre is refined, passed over a fourdrinier similar to a paper machine and placed in a press. Almost any desired degree of hardness may be secured by simply varying the pressure. No glue or other artificial binder is required to consolidate the fibre. The product is all wood, it has a tensile strength of from 4000 to 5000 pounds to the square inch, it is knotless, of very light weight, and a good insulator. The uses for which is said to have already proved satisfactory include desk tops, card tables, radio panels, wall board, paneling, and insulation.

Corn Stalks. Dr. O. R. Sweeney of Iowa State College and his aides have been experimenting since 1920 in an effort to develop the latent wealth of the corn plant. Samples of products made from corn and corn stalks, including food for diabetics, building blocks for skyscrapers, artificial lumber, "maple" syrup, corn cob pipes, embalming fluid and many types of wood substitutes were shown by him at the Exposition of Chemical Industries. Corn is the world's greatest crop but now it is only partly utilized. The value of the corn crop is about $2,000,000,000 a year. The stalks are largely waste material. Not more than 8 per cent of the total production in the United States of 200,000,000 tons a year is utilized. If the industrial possibilities of the stalks were being realized another $1,000,000,000 a year would be given to the corn growers. Dr. Sweeney built an experimental factory in his laboratory at Ames, Ia., where he is manufacturing artificial lumber, paper, building blocks, artificial silk, and other products. He showed a slab of board designed to be used as insulation in the building of houses that could be sold at retail for $40 a 1000 square feet, while the cheapest ship lath now costs $45. Besides its cheapness, the corn stalk insulation board is more than four times as good an insulator as wood lath, thus insuring that a house will be cool in summer and warm in winter and it will make a stiffer, stronger house.

Wood of any degree of hardness could be made by grinding up the stalks, beating the resultant flour until it is the consistency of jelly, and allowing it to dry in molds. Furniture made of such wood is immune from warping. Building blocks made of a mixture of corn stalks and clay are superior to those of gypsum now used for inside construction work. They are as light as gypsum and superior as heat insulators. Corn stalks and oat hulls are being used in considerable quantities for the production of furfural, and from it an embalming fluid has been made which is safer for those handling it than any previously used.

Ethylene. Among the interesting papers presented at the Richmond meeting of the American Chemical Society was one by Prof. S. C. Lind giving the results of a series of experiments conducted in the chemical laboratory of the University of Minnesota on the use of ethylene gas for the quick ripening of fruit. Ethylene, each molecule of which contains two atoms of carbon and four of hydrogen, may be produced in unlimited quantities cheaply. It takes a very small amount of this gas, released in air, to ripen a closed chamber full of green fruit. It has been known that ethylene would color the skins of fruits, such as bananas and oranges, but its value in ripening fruit was not recognized. In the ripening room in St. Paul, green celery was placed and released. It was rapidly blanched, was found very delicious, and had less stringiness than the celery ripened in the sun. The experiments were then applied to other fruits with excellent results. This process reduces the acidity of fruit and increases the sugar, or changes it from greenness to ripeness. The product is more palatable, and a fruit crop instead of being placed on the market all at once may be distributed over weeks, thereby saving the producer money and providing the consumer with good fruit at reasonable prices for a longer time than usual. Demonstrations of ethylene for the preservation of fruit were a feature of the National Exposition of Chemical Industries in September.

Sulphur as a Preservative. According to Dr. Ludwig Rosenstein of San Francisco, Calif., the use of finely divided sulphur powder has attained great importance as a material for dusting grape, orange, asparagus, and other plants afflicted with insect and fungous pests. The sulphur seems to be acted on by moist air to give products which attack the pest. Unfortunately, sulphur is not directly soluble in water, so that its usefulness depends on the amount of surface of the solid powder, and no ordinary grinding process will divide the sulphur into grains as small as those of the new product. Dr. Rosenstein's new ultra-fine sulphur comes as a by-product of his process for extracting the undesirable hydrogen sulphide from household fuel gas. In the process a little nickel sulphide is intimately mixed with the sulphur, and it is suspected that the accidental presence of this nickel compound is partially responsible for the great potency of the resulting sulphur dust. While ordinary "flowers of sulphur" will kill the red spider pest fairly readily, the new dust kills both eggs and mature insects. The by-product sulphur seems to exist as minute globules of a spongy suspension of sulphur in water suggestive of water-soaked grains of gelatin or starch and may derive value from this condition.

Excessive sulphur in gasoline shortens the life of a motor, according to H. C. Mougey, chemist of the General Motors Research Corporation; this important fact was brought out in his paper at the Detroit meeting of the American Chemical Society. He also declared the cause of corrosion in automobiles is water formed by the combustion of the fuel and that the corrosive effect of this water is greatly increased if it is contaminated with acids resulting from the burning of sulphur in the fuel.

Preservation of Stone. A press dispatch from London, England, in June reported that leading microscopic chemists, studying the crumbling stone of London's finest old buildings, have discovered the presence within the stone itself of bacteria, perhaps literally eating monuments away, and a standing committee of the Department of Industrial and Scientific Research has been appointed to study the effects and devise means for prevention. Because of the ravages of the climate and microscopic plants, such as lichens and mosses, the Parliament Buildings are believed to need refacing at a cost estimated by the Office of Works at £1,000,000. Buildings studied by the chemists include the Tower of London, the Public Records Office, Westminster Abbey, Temple Church, Somerset House, and Chelsea Old Church.

Tests for Diamonds. Various attempts have hitherto been made to measure the intensity of the iridescence of diamonds by photographic means, but solar light has always proved too diffused for accurate results. According to a press dispatch from Paris in June, M. Malaval, a chemist attached to the Lyons police laboratory, has invented a method to test the quality of diamonds. He has obtained perfect results with ultra-violet rays passed through a screen, The purest white stones give the clearest picture, yellow stones showing darker, while imitation diamonds show quite black. It is claimed that this method will make it impossible to substitute stones of lesser value for real diamonds placed in deposit, for example. All the possessor of the diamonds need do will be to get an ultra-violet ray picture made of them before temporarily giving up the stones and then have a second picture made when they are returned. The method will make it possible to decide the exact quality of any diamond with almost mathematical accuracy.

A New Disinfectant. The discovery of a new disinfectant, called chlorthymol, said to be entirely non-poisonous and much more effective than any other antiseptic or corrosive sublimate, was announced in a press dispatch from Munich in October. It is claimed by the discoverer that the new drug is superior to all other known disinfecting agents and that it kills germs in a remarkably short time and is harmless. For the tests made in Munich tetanus bacilli, known as the toughest of germs, were used. Wounds of animals were infected with four times a deadly quantity of germs and the disinfection delayed for many hours. A day after inoculation, killing of the germs was accomplished in a short time and the animals were saved. After twenty-four hours, when tetanus had already set in, the experimenters succeeded in saving 50 per cent of the animals. The opinion was expressed that chlorthymol may be useful in fighting leprosy and tests in that direction will be made in Java.

Moth Fumigant. The discovery of a new clothes moth cure, known as cinchona alkaloids, was announced on October 1 by the Mellon Institute of Industrial Research, in Pittsburgh, Pa. The repellent, which it was said, will save millions of dollars in clothing, was found after six years' work by Lloyd E. Jackson and Miss Helen E. Wassel. According to the discoverers products of the cinchona alkaloids have been shown to meet criteria of excellence heretofore unsatisfied by other moth repellents. They are inodorous; they adhere to the materials to which they are applied, can be put on evenly like a dyestuff; they are not apparent on the materials treated; they do not dust off; they do not affect undesirably the physical properties of textile fabrics; they can be made soluble in inexpensive organic solvents, such as petroleum naphtha, as well as in water; they are non-toxic to human beings; they are valuable clothes moth repellents and are economical to use industrially.

Chemists in the employ of the Federal Government have also been experimenting for some time on methods of eradicating moths which destroy cloth, and on ways to prevent roaches and other insects from destroying books and papers.

Therapeutic Value of Dyestuffs. According to Dr. Hugh H. Young in an address before the American Chemical Society, dyestuffs have remarkable therapeutic properties, particularly in the treatment of desperate cases of blood poison. His experiments hold forth great prospects in the future treatment of infections and infectious diseases. Researches over a period of ten years have been made with hundreds of dyes. Efforts have been made to find drugs that were germicidal, non-toxic, non-irritating, and efficient in serum, urine, bile, and other body fluids. Three new drugs have been produced of great value in certain infections on account of the penetration afforded by the dye and efficient germicidal effect. With one in particular, mercuro-chrome, remarkable efficiency has been shown not only in the local treatment of infections but in intravenous therapy. A 1 per cent solution is injected into the blood stream in doses of from three to five milligrams to the kilogram of body weight. Over 1000 cases have been collected of local and general infections, with a high percentage of immediate improvement and many remarkable apparent cures. In some cases of blood poison where the condition was desperate the results have been satisfactory.

Position of Chemical Exporting Countries. In August the Department of Commerce published (*Commerce Reports*, Aug. 29, 1927, p. 550) the following statement which is here somewhat condensed: Immediately following the close of the war, undoubtedly the United States was the largest chemical exporter. During the period of readjustment and recovery after the world depression in 1921, and continuing for three years through 1924, England and the United States were close competitors for the leadership in the world chemical trade. In 1925, however, Germany forged ahead, increasing its trade by $83,000,000, or 61 per cent, over the 1924 export. In 1926 the figure of $256,000,000 was attained, a much smaller increase, nevertheless, over the 1925 figure (only $36,000,000, 17 per cent). This total of over $256,000,000, however, made Germany the world's largest chemical exporter and exceeded the United States figure by $85,000,000. The United States took second place with $171,000,000, England third with $125,500,000, and France fourth with $114,000,000. In 1926, Germany's chemical exports were 50 per cent in excess of the United States' and more than double both those of France and England. During the past two years the depreciated value of the French currency and economic difficulties, such as the coal strike in England, have had an adverse effect on the chemical trade of the two countries. Germany's rapid ascendancy to this high position may be attributed largely to a more extensive world consumption of chemicals in general and to the development of a big export business in several commodities, particularly ammonium sulphate and synthetic methanol. During this five-year period the United States has gained 40 per cent, yet this rate is much lower than it should be, especially when it is considered that the United States is not only the world's largest producer and consumer but also the world's largest importer of chemicals, and that in 1925 only 7½ per cent of its total chemical production was exported. The table below shows the chemical export trade of the four countries by groups. As is generally recognized, the United States is the world's most important exporter of naval stores (rosin and turpentine), sulphur, and prepared medicines. It is also counted as one of the leading factors in the phosphate rock, toilet preparations (especially dentifrices), and pigment, paint, and varnish trades. The addition of the nitrogenous fertilizer compounds, particularly ammonium sulphate, to the already established potash industry has placed Germany as the foremost fertilizer-exporting nation of the world. Its position as the largest exporter of industrial chemicals and coal-tar products has also been maintained. Undoubtedly England leads all other countries of the world as an alkali exporter and is also an important shipper of crude coal-tar products, such as tar, pitch, and creosote oil, and some of the fine chemicals, such as prepared medicines and toilet preparations. Somewhat similar to the United States, England also has assumed a prominent position in the dye export trade. France, without a doubt, stands out above all other countries as the world's largest exporter of perfumery, perfume materials, and essential oils. It is also important as a source for some industrial chemicals and potash, and follows the United States as the next largest exporter of naval stores.

adopted by the European steel trust, the chemical trust would greatly reduce the cost of distribution and selling by using one line of ships instead of two, and in other ways eliminating competitive distribution. In Europe the trust will divide the markets, Germany serving one field, France another, and Great Britain still another, largely reducing overhead costs.

This movement, naturally, seriously threatened American interests, notably the great dye industry, so splendidly organized in the United States at the time of the World War. In 1914, the value of the chemical and allied products of industries in the United States was a little above $2,500,000,000. In 1923, according to census figures, the annual value of these products had jumped to over $5,706,000,000. Unofficial estimates for 1926 fix their value for that year close to $6,000,000,000. The value of exports of American chemicals in 1914 was a little more than $27,000,000 but in 1926 it had increased to $171,000,000.

CHEMICAL EXPORTS OF FOUR MAJOR EXPORTING COUNTRIES IN 1926

[*In thousands of dollars—000 omitted*]

Commodity	*United States*	*France*	*England*	*Germany*
Coal-tar products	14,093	8,211	16,323	58,229
Industrials (including sulphur)	39,761	31,901 [a]	47,516	67,792
Fertilizers and materials	20,500	15,285 [a]	14,894	66,402
Explosives, matches, pyroxylin	7,251	1,528	4,712	7,768
Naval stores, pigments, paints, varnishes	55,752	16,672	22,104	23,659
Medicinals and toilet preparations	28,082	32,682	20,477	28,676 [b]
Essential oils, crude drugs, natural dye extracts	5,866	7,996		3,524
Total	171,305	114,225	125,526 [c]	256,050

[a] Fertilizers higher and industrials smaller than given, on account of inclusion of some potash in industries.
[b] Includes crude drugs.
[c] Probably 5 to 10 per cent more.

European Chemical Trust. In September rumors of the proposed union of European chemical interests were prevalent, as manifested by the increasingly friendly spirit between the British and German chemical manufacturers. In the United States apprehension yielded to a distinct opposition to an international control of chemical products which was conspicuously shown by articles in *Industrial and Engineering Chemistry*, an official organ of the American Chemical Society, in which it was held that the movement to erect in Paris a world centre of chemistry as a memorial to the great chemist, Marcellin Berthelot, the centenary of whose birth was celebrated on Oct. 25, 1927, was a thinly disguised ruse. This movement which sought to raise $500,000 in the United States failed to receive the official approval of the American Chemical Society, and its president, Dr. George D. Rosengarten, acting on the unanimous advice of the executive council of the society, declined to become a member of the American Organizing Committee.

On October 15, there came from Paris the announcement that another link in the European industrial trust had been forged by the formation of a Franco-German entente. Early in 1926 the English and German chemical trusts were united by an agreement between the British Imperial Chemicals, Ltd., and the German dye trust. It was predicted at that time that the next step in the formation of the international cartel would be the entrance of France. All the principal French chemical industries were organized into the Union Chimique, so that the French chemical industry could enter the combination on the same organized basis as had the English and German industries. Italy and Switzerland were expected to join later.

The world market was divided under tentative plans laid for a unit sales system, which consists of the establishment of sales organizations at strategic points throughout the world. Through this method, which was soon to be

Francis P. Garvan, president of the Chemical Foundation, was reported in the *New York Times* as follows: "Don't make the mistake of thinking this is a dye fight, or a nitrate fight, or a rayon fight, or a fight for Asiatic or South American markets. No, it is a fight to reassert European (in reality German—the French and English have been duped) supremacy in chemistry and chemical progress, and that means German military supremacy and German industrial supremacy and German supremacy in drugs and potential necessities. America will never join such a combine. Germany may lull France, England, Italy, and Switzerland to sell their chemical independence and progress for a miserably small percentage of present business. But enlightened American industry, enlightened American opinion, and enlightened American legislation will not allow our betrayal."

The leaders in the chemical and allied dyestuffs industries in the United States were endeavoring to secure from Congress an amendment of the Sherman Anti-Trust act to permit the organization of chemical combinations in the United States as a means of meeting the intensive competition threatened by the newly formed chemical trust in Europe. The argument was made that, unless the restrictions imposed by the Anti-Trust law as to industrial consolidation were modified to some extent to permit the forming of the proposed combinations, the United States will lose a large part of its foreign trade in chemicals and allied products and eventually be forced to fight the European trust for control of the domestic market.

Necrology. Among the more important American chemists who died during the year were: Frederick Belding Power of the U. S. Department of Agriculture, who died in Washington, D. C., on March 26; Ira Remsen, professor of chemistry, and later president, of Johns Hopkins University, who died in Carmel, Cal., on March 4; Victor Lenher, professor of chemistry at the University of Wisconsin, who died in Madison, Wis., on June 12; Henry Paul Talbot, professor of chemistry at the Massachusetts Institute of Technology, who died in Boston, Mass., on June 18; Charles Frederic Mabery, professor of chemistry at the Case School of Applied Science, who died in Portland, Me., on June 26; Bertram Borden Boltwood, professor of radio chemistry at Yale University, who died in New Haven, Conn., on August 14. Biographical sketches will be found under the respective names.

BIBLIOGRAPHY. Among the more important books published during the year were the seventh and final volume of the revised and enlarged edition of Sir Thomas E. Thorpe's *Dictionary of Applied Chemistry,* and the second edition of *Principles of Chemical Engineering* by W. H. Walker, W. K. Lewis, and W. H. McAdams. Also to be included are the fifth edition of volume five of Allen's *Commercial Organic Analysis* and Griffin's *Technical Methods of Analysis.* Similar to these was the second volume of the *International Critical Tables* issued under the auspices of the National Research Council. Other works were *The Rayon Industry,* by M. H. Ayram: *Colloids,* by H. R. Kruyt, translated by H. S. Van Klooster; *Titanium, with special Reference to the Analysis of Titaniferous Substances,* by W. M. Thornton; *Phosphoric Acid, Phosphates and Phosphatic Acid,* by W. H. Waggaman; *The Industrial Chemistry of the Fats and Waxes,* by T. P. Hilditch; and *The Making of a Chemical; a Guide to Works Practice,* by E. I. Lewis and George King.

See also METALLURGY; PAPER; POTASSIUM; RUBBER, etc.

CHESS. Alexander Alekhine of Russia wrested the world's chess championship from José R. Capablanca, title holder since 1921, at Buenos Aires in November, 1927. The final score of the match was six victories for Alekhine, three for Capablanca and twenty-five draws. The tournament began on September 15 and was the longest ever contested. Earlier in the year Capablanca had easily disposed of Alekhine in a tourney held in New York City, the then champion not losing a game, whereas Alekhine finished with a score of 11 1–2 to 8 1–2 to take second place. An international team tournament was held in London in August, Hungary being the winner. Denmark finished second and the British Empire third. The United States was not represented. New York University for the third successive year won the American Intercollegiate Chess League title. The Metropolitan Chess League honors went to the Manhattan Chess Club.

The first world's championship checker match since 1905 was contested at the Hotel Alamac, New York City, the United States team defeating the British by compiling a total of 96 victories, 20 defeats and 366 draws.

CHICAGO. See CITY PLANNING.

CHICAGO ART INSTITUTE. See ART EXHIBITIONS; ART MUSEUMS.

CHICAGO, UNIVERSITY OF. An institution of higher education situated on the Midway Plaisance of the Chicago South Park system, Chicago, Ill.; founded in 1890, largely through gifts of John D. Rockefeller. The University, with its affiliated institutions, occupies, for educational purposes, over 65 buildings and 196 acres of land, including the site of the Yerkes Observatory at Williams Bay, Wis. The net total registration for the autumn quarter of 1927, exclusive of the home study department, was 7895, distributed as follows: Graduate school of arts, literature, and science, 1420; undergraduate school of arts, literature, and science, 2904; divinity school, 268; medical courses, 213; Rush Medical College, 311; law school, 414; college of education, 71; school of commerce and administration, 260; graduate school of social service administration, 110; university college, 2281. The summer quarter enrollment for 1927 was 6380. For the year 1926–27 there were 752 faculty members who were above the rank of assistant.

The total productive endowment of the University in September, 1927, was approximately $39,500,000, and its total resources, including funds held as agent and funds held temporarily, were in excess of $71,000,000. The library contained 768,559 volumes and about 275,000 pamphlets. Among the gifts received during the year for new buildings were: $665,000, from George Herbert Jones, to be used for the erection, equipment and maintenance of the George Herbert Jones Laboratory, for the department of chemistry; the sum of $1,000,000 from Col. John Roberts, for the erection and maintenance of a hospital to be known as "The Bobs Roberts Memorial Hospital for Children," as a unit of the University's hospital and medical education plant; the sum of $300,000 from Mrs. Gertrude Dunn Hicks, for the erection and equipment of The Gertrude Dunn Hicks Memorial, adjacent to the existing medical buildings of the University, as an orthopædic hospital in which preference is to be given as far as practical to poor children who are unable to pay for treatment received. Several gifts amounting to $20,300 were received for the extension of the work of the Oriental Institute and its explorations. Julius Rosenwald pledged $5000 a year for five years toward the budget of the graduate school of social service administration, in addition to which the school received pledges totaling $11,400. Among the bequests received by the University were the following: That of John Mason Jackson, of approximately $52,000, the income of which is to be used to aid poor and worthy students at the University; one-fifth of the residuary estate of Mrs. Mae Manford Bridge, to be used to further the work of the Norman Bridge Pathological Laboratory; the sum of about $600,000, after the termination of certain life-interests, from Willey S. McCrea; $50,000 from Edward Hillman, to be known as the "Edward Hillman Fund"; the sum of $200,000 from Mrs. George F. Porter, for the productive funds of the University. Gifts to the endowment were as follows: Frederick A. Ingalls, $100,000 on an annuity basis, to be used for such educational purposes as the Trustees of the University may determine; Louis B. Kuppenheimer, $250,000, the income of which is to be devoted to the study of the structure, functions and diseases of the eye, and to instruction in the department of ophthalmology. Up to Nov. 2, 1927, the University had received 137 contributions, totaling $315,573.33, to the Frank

Billings Medical Endowment Fund, a fund which it hopes to raise to $1,000,000.

Buildings under construction during the year involved the expenditure of about $8,033,000, and included: The University chapel, with a seating capacity of 2000; buildings for the medical school, one of which was the Albert Merritt Billings Hospital; Wieboldt Hall, for the use of the department of modern languages and literature; and an addition to the athletic stands. The University also received assurances of funds for the erection of a building for social sciences, and a building for mathematics and astronomy. President, Max Mason, Ph.D., LL.D.

CHILD LABOR. MANUFACTURERS' PLAN. Operating on the assumption that the Child Labor Amendment had been rejected, the National Association of Manufacturers, in the fall of the year, issued a programme for the greater protection of working children of the ages of 14 and 15. The plan included the following:

(a) An employment certificate issued under State authority for each job applied for under a different employer.

(b) A physical examination by physicians designated by the State, and a certificate that the individual is physically fit to enter the employment applied for.

(c) The completion of the sixth grade, after allowing two years for adjustment after the passage of the statute in States not already having an educational qualification, with proper provision for vacation permits.

(d) The requirement of a minimum of four hours a week of continued education, either in continuation schools or under shop plans approved by properly constituted State authority which should have the power to release individuals incapable of further education or to excuse any child until proper continuation schools have been established.

(e) The limiting of the hours of labor of all children under 16 years, employed in manufacturing, mining, transportation or commercial occupations, of not to exceed 48 hours per week, with a prohibition of night work before 7 A.M. or after 9 P.M.

(f) The strengthening of laws forbidding the employment of children in hazardous occupations by more carefully defining the specific hazards.

The plan was closely examined by the proponents of the Child Labor Amendment and portions of the Manufacturers' Plan came under severe censure. The following represents a synopsis of these criticisms:

Paragraphs *a* and *b* were deemed praiseworthy. On the other hand, the plan spoke nowhere of the eight-hour day as such. It referred to a 48-hour week for children under 16 with no night work after 9 P.M., but already 31 States and the District of Columbia had eight-hour laws, while 35 States and the District of Columbia forbade night work after 5, 6, and 7 P.M. Only Idaho in the whole country had a 9 P.M. closing law, while Texas and California permitted 10 P.M. as the closing hour. The fact that factories and establishments might be open between 7 A.M. and 9 P.M., in which children were to work 8 hours daily, made the proposal generally unenforceable.

Further, the carrying out of the programme meant for retrogression in many States that had enlightened Child Labor codes. For instance, in 7 States, the manufacturers would lower the leaving age for full-time compulsory school attendance from 15 years to the fourteenth birthday and the sixth grade. They would, too, release children from all school attendance where there were no continuation schools. They would make work legal for children in mines on the fourteenth birthday and the completion of the sixth grade, whereas, in all important mining States, the legal age for beginning work has been 16 since 1920.

However, it was agreed that the programme was a forward step as far as backward States were concerned. For example 6 States did not require employment certificates; 17 States did not require physical examinations; 19 States did not require the completion of the sixth grade; 21 States had no continuation school law; 13 States permitted more than a 48-hour week; 32 States permitted work before 7 A.M.; 5 permitted work after 9 P.M. in manufacturing and 15 permitted it in mercantile establishments. In reference to work in dangerous occupations: 28 States permitted children to work around explosives, 22 permitted them to run elevators, 35 permitted them to work on scaffolding, 17 permitted them to oil and clean machinery in motion.

Critics pointed out that it would be interesting to see if the Manufacturers' Plan was to be regarded as a minimum programme or a maximum one.

LEGISLATION. The *Connecticut* legislature passed a bill forbidding the employment of minors (under 16) after 6 P.M. on more than one day a week, and forbade their employment at any time after 10 P.M. *Illinois* amended its law to provide for the payment of an additional 50 per cent compensation to minors illegally employed. *Maine* amended its child labor code to further limit places of employment for minors. *Maryland* provided for double compensation in case of accident to illegally employed minors. *Michigan* passed a similar law. *North Carolina* passed a bill limiting, for children under 16 years who had not yet completed the 4th grade, employment to an 8-hour day, 48-hour week. The bill also prohibited the employment of children under 16 years after 7 P.M.

In certain States, existing codes were weakened. *Connecticut* passed a law to permit children between the ages of 14 to 16 to work after school hours. *Maine's* legislature decided to allow children over 14 years, of subnormal mentality, to leave school. *Michigan* permitted children engaged in canning establishments to work more than the maximum 10-hour day, 54-hour week. *Minnesota* amended its code to permit (by omission) the employment of minors in the paint industry. Also, children under 10 years may accept employment as singers, dancers, musicians or actors on a permit from the industrial commissioner. *West Virginia* amended its law to permit a parent's affidavit, in place of the birth certificate, to be accepted as proof of a minor's age.

CHILD LABOR AMENDMENT. During the sessions of the 1927 legislatures, the Child Labor Amendment was introduced into 13 such bodies. In the following States adjournment was made without any action having been taken: Colorado, Georgia, Iowa, New York, Oklahoma. In Maryland the amendment was rejected in both houses. In the following States, the amendment was rejected in one house and not introduced in the other: Tennessee, Texas, Utah, Wyoming. In Nebraska, the House rejected the bill and the Senate postponed action. In Nevada the House ratified the bill while the Senate rejected it. Montana was the only State which ratified the bill.

INTERNATIONAL SITUATION. As is known, one of the important functions of the International

Labor office, created by the Versailles Treaty, is the protection of children in industry. It is interesting to summarize here what steps had thus far been taken in this field. By the draft convention adopted at the Washington Conference in 1919, 14 was set as the entering age in manufacturing, mines and transportation, and in 1920 and 1921 seafaring, commerce, and agriculture were included. The 1919 Convention was ratified by 18 States with the result that in them the 14 years minimum was compulsory. These were: Belgium, Bulgaria, Chile, Czechoslovakia, Denmark, Estonia, Finland, Great Britain, Greece, Irish Free State, Italy, Japan, Latvia, Netherlands, Poland, Rumania, Jugo-Slavia, Switzerland. China and India passed similar laws, while in 9 countries legislation along the same lines was being considered. The 1921 Convention (affecting agriculture) was ratified by 11 countries; the 1920 Convention, affecting seafaring activities, was ratified by 19 countries.

The 1919 and 1921 Conventions, prohibiting nightwork in industry and agriculture for persons under 18 years between the hours of 10 P. M. and 5 A. M., was adopted by 20 countries, viz., Austria, Belgium, Bulgaria, Chile, Denmark, Estonia, Finland, France, Great Britain, Greece, Hungary, India, Irish Free State, Italy, Latvia, Netherlands, Poland, Rumania, Jugo-Slavia, Switzerland.

Other work accomplished by the International Labor Office was in the form of recommendations. These specifically were directed at the abolition of child labor in industries where there was danger of lead poisoning, the recommendation of periodic medical examinations, and the safeguarding of the health of minors engaged in seafaring activities.

INDUSTRIAL ACCIDENTS. An example of the inadequate precautions taken to protect children in industry was to be found in the summary of industrial accidents to minors in Illinois in 1926 (published by the Illinois Department of Labor). Of 1469, the total number of injuries reported, 89 had happened to children under 16. Of the 89, 75 lost six or more working days and of these, six were fatally injured and seven received injury causing permanent partial disability. Thirty-five of the injured children under 16 were illegally employed and under the Illinois law were not eligible to compensation. (This was changed by the law of 1927, giving such children an additional 50 per cent compensation.) The proportion of children killed was 2.5 per cent of those legally employed as compared with 8.6 per cent of those illegally employed; of those who worked legally, five per cent suffered permanent partial disability as against 11.4 per cent of those who were illegally employed. Between the ages of 16 and 17, and here the law does not apply as to hazardous occupations, there were 456 accidents, or more than five times the number occurring among children under 16 years.

FARM LABORERS. An interesting series of studies into the position of Illinois child farm laborers has been conducted by the Children's Bureau. Of 1672 children, under 16 years of age, found working in a group of districts 737 worked in the fields. Three-fifths of these were at least 12 years old; most of the children were of native parentage whose fathers were farm owners or tenants. The working day ranged from eight to 10 hours, involved the handling of machinery and teams of horses, and, when school absences occurred, farm work was cited as the chief reason. Most of the work was done on the home farm or in the vicinity of the home. This situation is to be contrasted with that of the child laborers on truck farms near Chicago. Most of these are of foreign parentage. They are not particularly retarded at school, but their lot is unfortunate in that they travel considerable distances to their places of employment.

CHILD NUTRITION. See FOOD AND NUTRITION.

CHILD WELFARE. Credit has been given before in the YEAR BOOK to the extraordinary rôle being played by the Children's Bureau of the U. S. Department of Labor in the field of child welfare. Through the publication of its excellent *News Summary*, by special bulletins, and through the medium of field surveys, this organization serves as a clearing house for information and for the creation of proper standards in the safeguarding of the health and lives of children. The progress indicated here in child welfare surely owes as much to the activities of the Children's Bureau as it does to any other single agency.

HOME CARE. The Children's Bureau indicated that from 1911 to 1926, 42 States, Alaska, Hawaii, and the District of Columbia had on their statute books laws providing for assistance for dependent children in their own homes. This was in line with the generally accepted theory that home care for dependent children was much more desirable than orphanage care. The movement had advanced on two wings: foster-home care for children whose mothers were dead, ill, or in institutions; and home care for children whose mothers would ordinarily be the chief breadwinners. In the latter case, the State supplements the family budget to insure the mother's continuance as the chief home-maker. Apropos of foster-home care it is interesting to note that the system had been in existence in Scotland since 1800, and there were in that country no public "orphan asylums." Contrast the situation with the United States. As a result of the census of dependent children for 1923, made by the U. S. Census Bureau, it was shown that in six States the foster home was unknown; in 16 States, the amount of foster-home care was about 1 per cent; while in 10 States it was under 5 per cent. Massachusetts led the New England group with 36.5 per cent; New Jersey led the Middle Atlantic States with 28.5 per cent; Michigan led its area with 19.4 per cent foster-home placement. An interesting treatise on the theory and technique of child-placing agencies is to be found in a Children's Bureau report for 1927: *The Work of Child-Placing Agencies* by K. P. Hewins, L. J. Webster and Dr. M. L. Evans.

LEGISLATION. The following notes summarize the leading activities of the 1927 legislatures in this field:

AID TO DEPENDENT CHILDREN. The Legislature of North Carolina increased its appropriation for *mothers' pensions* from $30,000 to $50,000. Pennsylvania appropriated $2,750,000 toward the same purpose. New Hampshire passed a law granting $2.50 per month per child additionally in exceptional cases and allowing mothers to accept approved employment of not more 20 hours per week. Missouri extended the application of its laws to all counties of less than 700,000 inhabitants. New York extended its laws to include aid to dependent children when the father is tubercular and is receiving treatment at an institution or at home. Oregon went further and included mothers whose husbands are inmates of county prisons and federal jails; as well as inmates of State institutions heretofore provided for. Some legislatures considered bills for shortening the residence requirements, these being Illinois, Michigan, Ohio. New York authorized children's courts in *nonsupport cases* to require a bond for the performance of court orders. Oregon included abandonment in its nonsupport law. Iowa, Minnesota, and South Dakota amended existing *adoption* codes. Vermont made it compulsory on the probate courts to investigate conditions attending adoptions. Delaware and Maine passed laws declaring mothers and fathers equal guardians of minor children. Vermont, Texas and Washington amended their laws of guardianship. Bills relating to status of *illegitimate* children failed of passage in Wyoming, Maine and New York.

The California legislature passed a bill bearing on the status of *crippled* children. This called for the registration of cripples, the establishment of free diagnostic clinics and free medical services. New York extended its present statute to apply to cripples up to 21 years. Michigan did similarly. Missouri passed a bill of the same character as California. With respect to *tubercular* children: Massachusetts authorized its counties to provide preventoriums and sanitaria; California authorized school districts to maintain special classes for tubercular children in vocational training; Minnesota passed a law similar to Massachusetts'. With respect to *deaf and blind* children: Indiana, California, Iowa, and Nebraska passed laws calling for the establishment of special classes or schools for children thus handicapped. New Jersey passed a law calling for the employment of school nurses. Arizona created a department of physical education in its schools.

With respect to *mental defectives*: Arizona's legislature provided for the creation of a State colony for mental defectives. Nebraska provided for more land for its institution. Measures to amplify the facilities of institutions now existing died in the legislatures of Indiana, Pennsylvania, South Dakota, and Washington.

With respect to *sterilization of mental defectives:* Indiana passed a law authorizing that inmates in State and county institutions for insane, feebleminded, and epileptic persons be sterilized. Colorado's governor vetoed a similar bill while in the legislatures of Minnesota, Pennsylvania, Vermont, and Iowa, similar bills failed of action.

Pennsylvania raised the minimum age of *marriage* to 16 years. Minnesota raised its age limit to 16 for girls. New York called upon its marriage clerks to demand documentary proof of age where the persons were under 21; also the written consent of parents was to be required where girls were between 14 and 18, and boys between 16 and 21. Bills to increase marriage restrictions with regard to age, etc., failed of passage in Idaho, Iowa, Kansas, Maine, Minnesota, Nevada, New Hampshire, New York, North Carolina, Oregon, Pennsylvania, South Dakota, Washington, and West Virginia.

DELINQUENCY. Among the other activities accomplished by the 42 Legislatures meeting during the year were the following: Ohio passed a bill creating a domestic relations court with juvenile jurisdiction, for Franklin and Stark Counties. Michigan passed a bill extending the provisions of the juvenile court law to wayward minors 17 to 21 years old. Nevada passed a bill for excluding minors from criminal trials unless they were on trial or appearing as witnesses. Arizona passed a bill for the establishment of a State school for delinquent girls. Missouri passed a bill reserving the Missouri reformatory for boys under 21 years. In New Hampshire a bill was passed for the construction of a girls' cottage at the State industrial school. In Texas, a bill was passed for the admission of all male delinquents under 17 to the State training school (this had special application to negroes). Iowa passed a bill making five years' imprisonment the minimum punishment for rape.

Great Britain. In this country an important document bearing on the legal status of juvenile delinquency was issued by a committee appointed by the Home Secretary after a two years' survey. The *News Summary* of the Children's Bureau reviewed the recommendations in this fashion: The simplification of procedure in the juvenile court to remove the characteristic court atmosphere; greater powers of guardianship vested in the court; greater coöperation with local educational authorities. The raising of the maximum age from 16 to 17 years. Between 16 and 17, the court should have power to commit to Home Office schools or to training institutions. Imprisonment for persons between 16 and 17 should be abolished; where imprisonment, between the ages of 17 and 21, is made the court is to certify that the offender cannot be dealt with in any other way. For persons under 18, the abolition of capital punishment is recommended. The strengthening of the probation service is considered, as are institutional and after-care methods. There is also recommended the establishment of observation centres for offenders under 21, whether dealt with by the juvenile or the adult courts. Finally, a group of recommendations aims at the further protection of neglected children by local school authorities and the juvenile court.

CHILD-CARE STATUTES. In 1925, a commission, appointed by Pennsylvania's legislature for the study and revision of the State's statutes pertaining to children, issued its first report. As a result, changes were made in the procedure in adoption and in the licensing of boarding homes. In 1927, a further report was presented. This recommended the following legislation: (1) further changes of the adoption code; (2) an act repealing the laws relating to the indenture of children; (3) an act regulating child placement, placing supervision under the department of welfare, requiring that records be kept, and outlining the standards of supervision of children placed out; (4) an act prohibiting the placement of children for hire; (5) an act calling for the licensing of maternity homes: (6) an act for the purpose of taking dependent children out of the Juvenile Court's jurisdiction.

VIRGINIA'S STERILIZATION LAW. On May 2, Mr. Justice Holmes of the U. S. Supreme Court handed down a decision upholding the constitutionality of Virginia's sterilization law. Only Mr. Justice Butler dissented. This was the first attempt to test the legality of the laws, existing in 1927 in 15 States, which give to State authorities the right to sterilize incurable mental defectives to prevent the reproduction of their own kind. It is interesting to note Mr. Justice Holmes' observations in approving the Virginia law. He said: "The provisions of the Virginia act include requirements for public hearings, reduction of all evidence to writing, appeal to the Circuit Court of the county, and finally appeal to the highest court of the State. There can be no doubt that, so far as procedure is concerned, the rights of the patients are most carefully considered, and as every step is. This case was taken in scrupulous compliance with the statute and after months of observation; there is no doubt that in that respect the plaintiff in error has had due process of law. It is better for all the world if, instead of waiting to execute degenerate offspring for crime, society can prevent those who are manifestly unfit from continuing their kind."

It had been obvious to social statisticians that institutionalized feebleminded persons were on the increase. The United States government census of 1926 showed their number to be 39.3 per 100,000 population as against 22.5 per 100,000 in 1910. These statistics do not necessarily indicate an increase in the problem; they merely show that institutionalization has increased. Sterilization, too, had its opponents. Objections were raised on: (1) humane grounds; (2) religious grounds; (3) that feebleminded persons were not necessarily dangerous or useless members of society; (4) there was nothing to indicate that the offispring of feebleminded persons may not be normal; (5) that feeblemindedness as a diagnosis was not necessarily exact.

INFANT MORTALITY. The *Statistical Bulletin* of the Metropolitan Life Insurance Co. continued its excellent work of publishing death figures affecting its large group of industrial policy holders. The following figures of mortality from children's diseases showed for the year 1926 a general decrease all along the line; the scarlet fever rate was 3.4 per 100,000 population (same for 1925); diarrheal diseases had a rate of 10.5; diseases of pregnancy and childbirth had a rate of 15.6 (16.9 in 1925); puerperal septicæmia and puerperal albuminuria fell to their lowest points thus far; diphtheria had a rate of 9.5, its lowest since the decline beginning in 1921. Measles, however, showed a rate of 8.0 per 100,000 (about three times the 1925 rate); while there was a 40 per cent increase in the whooping cough death rate.

SUICIDES. Despite the prominence given to suicides among young boys and girls by the press, figures published by the statistical office of the Metropolitan Life Insurance Co. indicated that suicides among children constitute but a small proportion of the total annually taking place. Among the 2,000,000 white minors insured by the Metropolitan Life the trend of suicide appeared to be downward. For boys between 15 and 20 years the rate was 3.9 per 100,000 in 1926 as compared with 6.7 in 1911 while the rate for girls was 3.4 as compared with 10.1 in 1911.

COÖRDINATION OF WELFARE WORK. Many cities in the United States long since had followed the example of Cleveland in creating a single Children's Bureau for the treatment of the problem of child dependency as a unit. The Jewish Welfare Workers had done similarly with the result that by 1927 all community resources were brought into play when a dependent child was committed for care to one of these central bureaus. The Federal Children's Bureau made public an important survey of the work of the Cleveland Children's Bureau in order to give a detailed answer to the question: Why child dependency? For it is well known now that dependent children are, in the majority of cases, neither orphans nor half orphans. In Cleveland, it was found that the greatest causes of dependency were illness, physical or mental disability, death, desertion, neglect, separation and divorce, poverty, immorality and intemperance of the parents, and delinquency or special problems in the children. Another important point proved by the investigation was that the rehabilitation of the home is very often possible. It was found in Cleveland, as a result of the use of community resources, that in 1927 there were vacancies in nearly all the child-caring institutions, that two of the institutions had already been closed down, and that it was possible to place out in foster homes all children committed. It is interesting to quote this summary of the work accomplished by the Cleveland Bureau as set forth in the Federal report: "It is of particular importance that under the Bureau's guidance the institutions are acquiring a new value in the scheme of child welfare; special needs are being met by the development of special service; and the realization has gradually come that dependency alone should not be the basis of child care; that it is no longer a question of sheltering great numbers of children to the glory of the institution, but rather of the individual care the institution may give the child to the glory of the child himself."

FAMILY ENDOWMENTS. From various quarters of the globe came information to show government preoccupation with attempts to supplement wages of working families with children. Early in the year *Spain* issued a royal decree providing for government aid for large families. A family with eight children is to receive 100 pesetas annually (about $17). Working people having more than 10 children are to be exempt from taxes on movable property and their children are to receive free tuition in the government schools. In *New Zealand* an act was passed for the paying of a State subsidy of 2s. per week for each child in excess of two, up to the age of 15 years, where the family income is not more than £4 weekly. *New South Wales* passed a somewhat similar law. After the determination of a basic wage, an endowment of 5s. weekly is to be paid for each child of 14 and under, where the family's income did not exceed the basic wage. The cost of the measure will be in the neighborhood of £4,000,000, employers being taxed, on the basis of their payrolls, to meet it.

FRANCE. Figures published for 1926 show that in France the excess of births over deaths was only 13 per 10,000 population. This was due largely to the decreased birth rate and the increased mortality, and particularly infant mortality rates. The French infant mortality rate was 97 per 1000 live births as compared with 75 in England (1925), 49 in the Netherlands (1925), 80 in Denmark (1925), 55 in

Sweden (1925). Germany, Spain, and Hungary had higher infant mortality rates, showing for 1925, 105, 136 and 167 respectively. However, these figures were lower than those for 1924 while French figures for 1924 and 1925 were 85 and 89 respectively.

Brazil. The government of Brazil set up a minors' code consolidating all the existing child-welfare laws on the statute books. Some of the more important laws incorporated were: a maximum six-hour day for employed minors under 18; persons between 12 and 14 years may work on completion of a primary school education; nightwork is prohibited for children under 18; no boy under 14 or unmarried woman under 18 may be engaged in any street work. Further, the laws call for public supervision of infants placed out in foster homes and provide for State supervision of children placed under the care of individuals, institutions, or associations. Further, they provide for commitment to training school of minors under 18 years charged with vagrancy and for the care of delinquents under 18.

CHILE, chē′lā. A South American republic lying on the western Pacific coast of the southern part of the continent, extending from Peru to the southernmost point. Capital, Santiago.

Area and Population. The extreme length of Chile is 2628 miles and the average width is 177 miles; area 290,084 square miles. At the census of 1920 the population was 3,753,799. The republic is divided into 23 provinces, subdivided into 82 departments and one territory (Magallanes). The populations of the principal cities, according to the census of 1920 were: Santiago, 507,296; Valparaiso, 182,242; Concepción, 64,074; Antofagasta, 51,531; Iquique, 37,421; Talca, 36,079. The urban population made up 46.6 per cent of the total. The great majority of the population are of European descent. In 1920 the foreigners numbered 115,763, as against 134,524 in 1917. The natives comprise the Fuegians, for the most part nomadic and living in the southern territories; the Changos, civilized and employed as laborers, in the coast region; and the Araucans, who live in the valleys and on the western slopes of the Andes and number about 101,118. The movement of population in 1925 was: Births, 159,017; deaths, 116,943; marriages, 28,862. On Oct. 1, 1926, the population was estimated at 3,963,462. Immigration is small but is encouraged by the government.

Education. Elementary education is free and compulsory. According to the latest available statistics there were 3357 public schools with 438,781 pupils and 9414 teachers. The Government Bureau of Primary Education reported for April, 1927, the highest registration and average attendance so far recorded for Chilean primary schools, i.e. a registration of 429,114 pupils and an average attendance of 344,527. There were also 459 private primary schools with 1430 teachers and 62,099 pupils; 15 public normal schools with 2507 pupils and 453 teachers; 96 public and 102 private secondary schools with 40,084 and 20,536 pupils and 2038 and 1247 teachers, respectively; 11 public commercial schools with 181 teachers and 3133 pupils. There are various schools of mines, professional schools, and other special institutions. For higher education there are the University of Chile, belonging to the state, the Catholic University, and two industrial universities, situated at Valparaiso and Concepción. Other noteworthy institutions are the Pedagogical Institute, the National Conservatory of Music, the National Observatory, etc. There are in addition various lyceums and colleges maintained in the provinces.

Production, Minerals, etc. Agriculture and mining are the chief pursuits of the country. The agricultural zone lies in the centre of the country, the climate permitting the raising of tropical products as well as those of the temperate zone. Cereals are the leading crops and wheat is the most important. The acreage and production in metric quintals of the principal crops in 1926 were as follows: Wheat, 1,501,806 acres, 16,142,420 quintals; barley, 126,096 acres, 2,289,826 quintals; oats, 92,348 acres, 1,564,964 quintals; maize, 50,359 acres, 543,200 quintals; beans, 90,009 acres, 702,124 quintals; peas, 2823 acres, 21,940 quintals; potatoes, 68,074 acres, 270,890 tons; vines, 171,480 acres, 33,249,018 gallons of wine. Fruit growing has latterly increased and covers an area of approximately 20,000 hectares. On Jan. 1, 1926, the livestock comprised 323,581 horses, 27,364 asses, 40,187 mules, 1,918,433 cattle, 4,093,872 sheep, 357,033 goats, and 246,636 pigs.

Chile is very richly endowed with minerals. She is the second largest producer of copper in the world, the output in 1925 being 189,319,000 kilos (417,379,000 pounds). Other important minerals are gold, silver, cobalt, manganese, coal (1,440,425 tons in 1925), nitrate, borate, salt, sulphur, guano, and iron ore. The iron resources had not been developed to any great extent but were reported to be very rich. The deposits are in the provinces of Atacama and Coquimbo. The coal region lies to the south of Valparaiso.

By far the most important item of commerce is nitrate of soda, which is found chiefly in the nitrate section of the desert of Atacama. According to the U. S. Bureau of Foreign and Domestic Commerce, the annual message of the president of the Chilean Nitrate Producers' Association on Sept. 29, 1927, contained many interesting comments regarding the conditions which affected the sales of nitrate during recent years, and again urged the need of a substantial reduction in export duties if Chile was to maintain a fair share of the oversea market. Reviewing the statistical position of the industry, the president pointed out that Chilean production of nitrate during the 12 months ended June 30, 1927, reached 1,301,968 metric tons, approximately 50 per cent below that of the preceding year. Exports totaled 703,555 metric tons, or approximately 33 per cent less than in 1925–26. Sales of 1,023,108 metric tons were approximately 47 per cent below those of 1925–26, and consumption, amounting to 344,424 metric tons, was about 16 per cent less. Faced with the increasing competition from synthetic fertilizers, the association recognized the necessity of developing and promoting the consumption of Chilean nitrates. During 1925–26, £361,031 were expended for this purpose and for the year 1927–28 there has been budgeted the sum of £368,105.

For the latest study of Chilean manufacturing industries consult the preceding Year Book.

Commerce. The following table from the Pan American *Bulletin* gives the Chilean foreign trade in mining products during 1926:

CHILEAN FOREIGN TRADE IN MINING PRODUCTS, 1926

	Amount	Value Pesos
Imports		
Iron wire ....kilos..	10,283,390	5,589,431
Benzine ....do...	19,279,553	6,043,094
Coke ....tons..	33,410	1,693,509
Coal ....do...	105,811	5,945,514
Calcium carbide .....kilos..	5,552,408	2,341,149
Cement ....do...	90,418,557	10,052,951
Dynamite ....do...	2,419,084	11,325,283
Pig iron ....do...	8,164,647	1,507,090
Corrugated sheet iron ..do...	5,321,809	4,400,428
Sheet iron (plain) ....do...	13,493,555	6,654,611
Bar iron ....do...	36,506,746	10,254,801
Tin plate ....do...	7,119,708	5,539,463
Paraffin wax ....do...	7,233,002	6,537,478
Crude petroleum .....tons..	734,187	55,541,183
Kerosene ....kilos..	19,738,275	2,235,057
Exports		
Sulphur ....kilos..	20,000	18,150
Borax ....do...	28,030,664	16,817,599
Coal ....tons..	28,888	2,313,838
Copper bars ....kilos..	193,876,336	403,023,081
Copper matte ....do...	530	569
Copper ore ....do...	80,062,851	11,473,264
Iron ore ....tons..	1,455,281	12,733,301
Silver ore ....kilos..	351,060	319,173
Gold, plate, dust, or bars ....grams.	83,888,000	120,623,457
Silver bullion ....do...	7,389,590	1,032,367
Nitrate ......metric quintals	14,526,354	621,962,482
Iodine ....kilos..	1,075,319	90,678,796

Chile, one of the most progressive countries of South America, has long been an important market for American products. In 1913 the United States ranked third among suppliers of the Chilean market. Since that time however, the United States has superseded both Germany and Great Britain, and, although competition was keen, it had been able to maintain the supremacy gained during the World War. The prosperity and well-being of Chilean commerce fluctuates directly with the condition of a single industry, the production of nitrate of soda. The relation between Chile's imports and exports of nitrate and iodine (a by-product of the nitrate fields) is indicated below.

VALUE OF CHILEAN IMPORTS IN RELATION TO VALUATION OF EXPORTS OF IODINE AND NITRATE

[*In United States currency*]

Year	Total imports	Exports of iodine and nitrate
1922..................	$86,570,800	$64,507,250
1923..................	120,198,400	117,900,750
1924..................	132,589,000	123,701,800
1925..................	148,843,800	134,873,500

According to statistics compiled by the Pan American Union, the value of Chile's foreign trade in 1926, expressed in United States currency, totaled $358,575,580, as compared with $377,426,497 in the previous year, being a decline of $18,850,917, or 4.99 per cent. Imports to the value of $157,274,448 showed an increase of $8,430,152, or 5.66 per cent over 1925, while exports valued at $201,301,132 represented a decrease of $27,281,069, or 11.93 per cent. The export figure includes reëxports. Lower production and exportation of nitrate caused the decline in exports.

Of the total imports the United Kingdom supplied $27,069,517; France, $6,554,944; Germany, $19,088,067; and the United States, $51,386,535. Among the leading imports in 1926 were: Iron and steel bars, plates, and manufactured articles, $21,962,563; cotton textiles, $13,678,261; mineral oils, $8,863,090; bags, $8,232,620; sugar, $7,621,650; livestock, $7,100,838; electrical machinery and apparatus, $6,793,299; woolen fabrics, $5,433,940; edible oils, $2,210,341; rice, $2,052,769; tea, $1,819,509; newsprint paper, $1,809,358; chemical products, $1,645,059; locomotives, $1,352,109; and passenger automobiles, $1,218,383.

The share of the United Kingdom in Chile's export trade amounted to $52,139,031; of France $7,594,396; of Germany, $12,040,441; and of the United States, $96,905,476. The leading exports were: Nitrate, $86,423,113; bar copper, $47,044,437; gold in bars, $23,064,379; iodine, $11,569,651; wool, $4,648,729; barley, $3,799,737; borax, $2,513,420; oats, $2,419,526; wheat, $1,846,628; copper ore, $1,802,838; frozen meat, $1,682,033; iron ore, $1,444,169; and wheat flour, $996,102.

FINANCE. The average annual increase in expenditures during recent years will be seen from the following table:

EXPENDITURES IN RECENT CHILEAN BUDGETS

Year	Estimated budget expenses Pesos	Percentage variation from preceding budget
1923.....................	672,140,000	+ 11
1924.....................	637,904,000	— 5
1925.....................	707,729,000	+ 11
1926.....................	958,824,000	+ 36
1927.....................	993,059,000	+ 4

Each of these years resulted in a heavy deficit for the country. In 1926, for instance, budgeted expenditures reached 1,038,000,000 pesos, whereas actual income only amounted to 822,000,000, leaving a deficit of 216,000,000 pesos. By applying against this amount 115,000,000 pesos received from the proceeds of the Kissel-Kinnicut loan, the year's deficit was reduced to 101,000,000 pesos. During 1927 an at-

CHILEAN GOVERNMENT RECEIPTS AND EXPENDITURES, 1927

[*Estimated*]

Receipts, in pesos		
Ordinary revenues:		
(*a*) National property	18,290,018.92	
(*b*) National services .	102,659,359.25	
(*c*) Direct and indirect taxes	709,872,161.04	
(*d*) Various revenues	124,753,126.42	
Total		955,574,665.63
Revenues from special laws, devoted to particular objects:		
Plans and construction of sewer systems ..	8,585,000	
Dredging of the Mapocho River	2,000,000	
Port works	26,900,000	
Total		37,485,000.00
Grand total		993,059,665.63
Expenditures, in pesos		
Interior		133,796,415.28
Foreign relations		9,226,889.31
Justice		28,669,774.78
Public instruction		141,887,605.81
Treasury		298,290,274.94
War		115,228,669.98
Navy		97,053,786.21
Agriculture and industry		14,470,908.00
Lands and colonization		1,980,865.80
Public works, commerce, and communications		126,581,267.90
Hygiene and public charity		24,659,915.62
Social welfare and labor		1,713,292.00
Total expenditures		993,059,665.63

tempt was made to return to a fair average increase, no matter what the outcome may be. According to information in the press of Santiago the accompanying table (page 191) shows the estimated gross receipts and expenditures of the government for the year.

As regards the 1928 budget the Minister of Finance gave the following as the Budget Office's estimates of the probable revenues after correcting obvious errors in the 1927 year's estimates:

ESTIMATED CHILEAN REVENUES FOR 1928

Item	*1927 budget Thousand pesos*	*1928 proposed budget Thousand pesos*
National properties	18,290	2,450
National services	102,659	109,711
Direct and indirect taxes:		
Nitrate	171,400	......
Import duties	215,000	......
Income	167,500	......
Seals, stamps, etc.	35,300	......
Consular duties, etc.	27,000	......
Other	93,672	......
Total	709,872	749,843
Various receipts	124,753	52,336
Total ordinary receipts	955,574	914,340

Communications. The total length of government owned railways in Chile in 1927, was 4083 kilometers; capital expenditure, 862,963,000 pesos; receipts, 239,168,000 pesos; expenditures, 197,678,000 pesos; interest payments, 22,704,000 pesos. The Minister of Public Works in Santiago announced during the year 1927 that 9,000,000 pesos had been allotted in the current appropriations for the construction of branches and sidings on the Iquique-Pintados branch of the Longitudinal Railway of Chile, and for the purchase of necessary rolling stock and equipment for its operation. According to the Minister's decree, the 9,000,000 pesos will be expended for the following purposes: (a) To complete branches to the nitrate plants, Brac, Pan de Azucar, Diez de Septiembre, and Santa Lucia, 430,000 pesos; (b) for the construction of a branch line to Pampas Pissis and Nebraska, 2,250,000 pesos; (c) for the purchase and repair of rolling stock, 4,232,000 pesos; (d) for construction of a power plant for the operation of repair shops, 500,000 pesos; (e) to begin construction of repair shops, 1,000,000 pesos; (f) to begin construction of homes for workmen and for strengthening the railway mole, 250,000 pesos; and (g) for expenses of administration and miscellaneous, 338,000 pesos.

At the suggestion of Admiral Swett, when Minister of Marine, an assembly of interested persons was convoked for Merchant Marine Week in Valparaiso the last of March, in order to bring out public opinion on the needs of the national merchant marine. Among other matters, the conference favored the continued reservation of coastwise trade to Chilean shipping, the repeal of certain taxes, and the passing of a law subsidizing national naval construction and navigation. In the closing address, Captain Frodden, Minister of Marine, promised his support to the first two of these measures, but said that he thought the consideration of subsidies would have to be postponed until financial conditions should have improved. The shipping entered and cleared at the ports of Chile in foreign trade in 1925 was as follows: Entered, 1245 vessels of 3,348,338 tons; cleared, 1191 vessels of 3,247,319 tons. In the coastal trade, 17,446 vessels of 15,924,478 tons entered, and 18,512 of 19,177,121 net tons cleared.

Government. According to the constitution of Oct. 18, 1925, legislative power is vested in the National Congress, consisting of a senate of 45 members and a house of representatives of 132 members. The executive power is vested in the president who is elected for six years, and who is not eligible to succeed himself. The president is assisted by a cabinet, which is responsible to him, and the members of which may speak in congress but may not vote. President in 1927, Col. Carlos Ibáñez.

History. Col. Carlos Ibáñez, actual executive of Chile, with the rank of vice-president at the time of the election, was elected by an overwhelming majority of the 300,000 votes cast at the elections in May. As noted in the preceding Year Book, Colonel Ibáñez had a brief but active career as premier, and, after President Figueroa-Larrain's request for a two months' leave of absence, he was appointed vice president. Shortly afterward the president requested to be relieved of office, whereupon Colonel Ibáñez signed a decree authorizing elections to fill the vacant presidential chair, announcing at the same time his own candidacy for that office. In a statement to the press, immediately after his election, the new president said, "I am profoundly grateful to my fellow countrymen, who in such generous fashion have expressed their desire that I continue to head the campaign for the moral, economic, and social betterment of Chile."

The new president was born some 45 years previously in the city of Linares, one of the numerous rural communities scattered along the line of the great Central Valley which constitutes the backbone of the national life of the Chilean republic. His family, which traced its descent directly back to the original settlers of the country, possessed one of the large fortunes of the country, but time and the ever-increasing number of new branches had left little more than the memory of former affluence. Shortly after his graduation from the National Military Academy in Santiago in 1903, Captain Ibáñez was assigned to serve as instructor in the republic of Salvador. Upon his return to Chile in 1909, Captain Ibáñez again took his place as a cavalry officer in the regiment of Cazadores. Two years later he entered the War Academy, the finishing school for the officers of the Chilean army. Later still he passed some time with the garrison at Tacna, going afterward to Iquique as commissioner of police. In 1924 he was back again at Santiago, where he became one of the guiding forces of the political upheaval of that year. Afterwards he became a leading force in the Government of Chile, first as minister of war, later as prime minister, and still later as vice president. The Ibáñez government appointed Señor Don Carlos Davila ambassador extraordinary and minister plenipotentiary to the United States to succeed Dr. Miguel Cruchaga Tocornal. The new ambassador was received by President Coolidge on October 6.

An important historical event was the signing, February 24, of a treaty between Chile and Italy. So many treaties in history have provided for offensive or defensive war that this one, of which the sole purpose was peace, deserves to be signaled. Inspired by "the desire of the two countries to strengthen the bonds of friendship which unite them and increase the cordiality of their relations," it established a procedure for the peaceful settlement of any disagreement which may arise between them. A permanent arbitration commission, to consist of five members, of whom three shall not be citizens of the contracting powers, is to be appointed. Should the findings of this commission, on any dispute which may arise not be accepted by either of the powers concerned, the dispute is to be referred to the Permanent Court of International Justice at the Hague, whose decision shall be executed in good faith. It is provided that the treaty, which is of 10 years' duration, shall in no way affect the rights and obligations of the contracting powers as members of the League of Nations. Since this was the first treaty which Italy had concluded with any trans-Atlantic power, it excited great interest in that country. Don Enrique Villegas, Chilean ambassador at Rome, has stated that he believed it to be the first of a series of treaties between Italy and the Latin American states and between Chile and the great powers of the world.

For a discussion of the Tacna-Arica dispute, consult the article on ARBITRATION, INTERNATIONAL.

CREATION OF NATIONAL BUDGET OFFICE. A decree of the Minister of the Treasury of Chile created a national budget office on Aug. 24, 1927. In addition to setting forth the functions of the office and defining its powers, the decree provides for a separate appropriation in the annual budget for its maintenance and fixes its personnel. It is intended that the budget office shall be a separate entity, reporting directly to the President when the reorganization of the government is completed.

Among the most important functions of the budget office are the preparation of estimates of fiscal receipts, the formulation of a budget of expenditures, and requisite adjustment subject to presidential approval. The budget office is also charged with the establishment of well-defined standards for the preparation of the extraordinary and special budgets, the classification of budget receipts and expenditures, and the collection of pertinent data on the national and foreign budgets. The printing and distribution of the national budget law are other functions of the budget office.

The Director of the Budget will be empowered to propose personnel nominations of the budget office to the President, and to make any expenditures necessary for the opportune preparation, printing, and distribution of the budget. When considered necessary, he will have the power to visit any office of the Government and solicit necessary data for the preparation of the budget of receipts and expenditures.

The Director of the Budget will also be empowered to designate, in agreement with the ministers charged with the preparation of the budget in their departments, special commissions to investigate possible economies in public service which are compatible with the nature of the service and meet with legal and administrative requirements. The budget director will also be empowered to propose to the President regulations governing the application of the organic budget law.

CHILE NITRATE. See FERTILIZERS.

CHINA. A Far Eastern State forming the eastern part of Asia. on the Pacific Ocean, under a republican form of government after Feb. 2, 1912.

AREA AND POPULATION. China comprises 18 provinces, the so-called dominion of Sinkiang, the dependencies of Manchuria, Fengtien, Kirin, and Heilungkiang, and the regions over which only nominal authority exists, viz., Mongolia and Tibet. Since China has not yet carried out a proper land survey or census, the area and population of its territory can be given only as estimates, as in the following table (figures for certain other countries are added for purposes of comparison):

Regions	*Area in square miles*	*Population*	
		Total	*Density per square mile*
China proper, including the three Manchurian Provinces	1,897,000	436,000,000	238
Mongolia	1,370,000	2,500,000	2
Chinese Turkestan .	550,000	1,200,000	2
Tibet	465,000	6,500,000	14
Total, Chinese territory	4,282,000	446,200,000	104
South America	6,850,000	60,000,000	8
United States, exclusive of dependencies	3,620,000	110,000,000	30
Japanese Empire ..	260,000	80,000,000	307
France (continental)	207,000	40,000,000	150

The population of the Great Yangtze Basin is estimated at 200,000,000. The Yangtze Delta, comprising an area of 50,000 square miles, or about that of the State of Illinois, has an estimated population of 40,000,000. Two-thirds of China's population is concentrated in one-third of its area, being densest along rivers and in coastal regions. Mongolia, Turkestan, and the three Manchurian Provinces offer vast areas of fertile lands for settlement and mineral resources for development, but lack of adequate means of transportation and protection against brigandage have discouraged settlement of these sections. The accompanying table (page 194) gives certain essential data concerning the Provinces of China:

The figures pertaining to area and population as given in the foregoing table are taken from the Chinese Post Office estimates of 1922. Where these figures are given otherwise in this book, the reader is at liberty to make his own choice—for China has as yet taken no official census.

There are similar divergences in the estimates of the population of the cities. According to the government estimate of 1921, the population of Peking and its suburbs was about 1,300,000. Another estimate places it at 924,334, including 4000 foreigners. The estimates for the chief Chinese ports in 1925 given out by the Chinese Maritime Customs were as follows: Shanghai, 1,500,000; Hankow, 1,646,800; Canton, 900,000; Hangchow, 340,200; Changsha, 535,800; and Soochow, 500,000. The total number of foreigners and foreign residents in China in 1925 accord-

POPULATION AND AREA OF CHINA, BY PROVINCES

Province	*Area in square miles*	*Population according to Chinese Post Office estimate, 1922*	*Capital of Province*
Anhwei	54,826	19,850,000	Anking
Chekiang	36,680	22,000,000	Hangchow
Chihli	115,830	34,200,000	Paotingfu
Fukien	46,332	13,200,000	Foochow
Honan	67,954	30,850,000	Kaifeng
Hunan	83,398	28,450,000	Changsha
Hupeh	71,428	27,150,000	Wuchang
Kansu	125,483	6,000,000	Lanchowfu
Kiangsi	69,498	24,500,000	Nanchang
Kiangsu	38,610	33,800,000	Nanking
Kwangsi	77,220	12,250,000	Kweilin
Kwangtung ..	100,000	37,150,000	Canton
Kweichow ...	67,182	11,100,000	Kweiyang
Shansi	81,853	11,000,000	Taiyuanfu
Shantung	55,984	30,800,000	Tsinan
Shensi	75,290	9,450,000	Sianfu
Szechwan	218,533	49,800,000	Chengtu
Yunnan	146,714	9,850,000	Yunnanfu
Shengking (Manchuria)	363,700	22,100,000	Mukden
Kirin (Manchuria)			Kirin
Heilungkiang (Manchuria)			Tsitsihar
Total ...	1,896,515	433,500,000	
Sinkiang	550,000	2,500,000	Urga
Mongolia	1,370,000	2,500,000	Lhasa
Tibet (Chinese estimate) ..	465,000	6,500,000	
Grand total	4,282,000	445,000,000	

ing to the Chinese Customs authorities was 336,841, of whom 218,351 were Japanese, Russians, 79,785, British, 15,247, Americans, 9844, Portuguese, 3739, Germans, 3050, and French, 2576. The treaty powers in China down to the beginning of 1927 were as follows: Russia, Great Britain, United States, France, Norway, Sweden, Denmark, Netherlands, Spain, Belgium, Italy, Peru, Brazil, Portugal, Japan, Mexico, Chile, Switzerland, Bolivia, Persia, and Japan. Of these powers, Germany, Bolivia, Persia, and Chile have renounced the consular power.

EDUCATION AND RELIGION. There are two kinds of primary schools in China, the higher and the lower. The former are established by district governments and are intended as intermediate schools between the lower primary schools and the middle schools. According to the latest available statistics the total number was 10,236 with 582,579 pupils. At the same time there were 167,076 lower primary schools with 5,814,375 pupils. At the beginning of 1927 there were 10 government universities. Tsing Hua College, a special institution, was established near Peking, to prepare students for education in the United States, under the agreement on the part of the United States to return the Boxer indemnity for that purpose. There is a modern university for Chinese under British direction at Hong Kong which is attended by students from many parts of China.

There are three forms of native religion, Confucianism, Buddhism, and Taoism. Besides these there are Mohammedans in all the provinces, whose numbers have been estimated at 5,000,000 to 10,000,000. Roman Catholicism at the end of 1923 maintained 57 bishops, 1481 European priests, and the native Roman Catholics numbered 2,208,800. The Protestant missions in 1920 had 6636 engaged in their service and the Chinese Protestants numbered 618,601.

ECONOMIC CONDITIONS, PRODUCTION, ETC. The U. S. Bureau of Foreign and Domestic Commerce reported in November, 1927, that although China for several years past had been in a state of political disruption, which had seriously reacted on its economic and commercial activities, yet many foreign observers claimed to perceive beneath the disorders evidences of the growth of a new China. The great outstanding feature apparent was the gradual development of a spirit of nationalism which reaches beyond political lines and seems to offer promise of a homogeneity which the Chinese have never yet experienced. The Chinese as a people striving for normal development were, however, suffering from severe handicaps, some of which can only be overcome by time.

Widespread education, all the way from elementary forms to technical training, and a more complete system of communication and transportation are probably the two greatest needs of aspiring China. More than 80 per cent of the people are illiterate. About the same portion constitutes the agricultural masses, who, for the most part, live in the direst poverty. Industries are still very largely in the cottage and hearthside stage of development that characterized industrial Europe in the Middle Ages. There are also a great number of dialects which are not understandable as between people of one province and another, hence customs and opinions are divided along provincial lines. The family is the social unit, and the clan, rather than the community or the State, calls for the individual's allegiance. Concentration over many centuries on obligations to ancestors rather than to the political entity has served to retard the development of any sort of civic spirit.

China's internal communication lines are, with the exception of a few thousand miles of railroad and a few hundred miles of recently built highroads, almost as primitive as they were in the time of Confucius. Other handicaps at the present time are the demoralizing effect of overissues of unsecured paper money by military war lords, and the presence in the country of upward of a million armed men, comprising in part armies of brigand soldiers.

China and the United States lie between approximately the same degrees of latitude and are surprisingly similar physically. Each is possessed of a huge central river valley which constitutes the backbone of its agriculturally productive area. Each is possessed of a remarkable range of mineral resources, but the mineral resources of the United States are in course of adequate development, while China's are almost untouched. In area China is larger than the United States, and has nearly four times its population. This vast total of over 400,000,000 people, however, is spread very irregularly over the country, six-sevenths of its inhabitants being concentrated in one-third of its area. Striking indices of the differences in development between the two countries are the per capita ratio of iron and steel production and the per capita use of industrial machinery. China's per capita iron and steel production is one one-hundred-and-eightieth of that of the United States. In the United States every man, woman, and child has on the average 25 mechanical services, compared with an estimate of three-fourths of one for each Chinese. An interesting contrast in the economic development of the two countries is afforded by the accompanying summary, showing some forms of their industrial equipment and productivity.

STATISTICS SHOWING THE COMPARATIVE ECONOMIC DEVELOPMENT OF THE UNITED STATES AND CHINA

Item		*United States*	*China*
Motor vehicles	number	22,000,000	22,000
Surfaced roads	miles	500,000	5,000 [a]
Telephones	number	17,000,000	100,000
Railways	miles	250,000	7,000
Post offices	number	51,000	11,800
Telegraph wires	miles	1,850,000	84,000
Cotton spindles	number	37,000,000	3,500,000
Cotton looms	do	650,000	25,500
Coal output, annual	tons	585,000,000	25,000,000
Capacity of blast furnaces, annual	do	45,000,000	500,000
Population		110,000,000	400,000,000
Area	square miles	3,743,500	4,278,000
Electric light and power, capacity	kilowatt	14,000,000	250,000
Wheat flour manufacture, annual	barrels	115,000,000	30,000,000 [a]
Cotton production	bales	15,000,000	2,500,000
Children in public schools	number	26,000,000	7,000,000
Foreign trade, annual	gold dollars	9,000,000,000	1,300,000,000
Per-capita foreign trade	do	80	3
Wheat production, annual	bushels	800,000,000	300,000,000 [a]
Rice production, annual	do	34,000,000	800,000,000 [a]
Peanut production, annual	tons	350,000	900,000

[a] Estimated.

Of China's immense population at least 80 per cent is agricultural. Among the principal crops of China are wheat, barley, corn, millet and other cereals, peas, beans, rice, sugar, indigo, cotton, silk, tea, and a great variety of fruits. The social and economic life of the nation is so definitely associated with agriculture that, the Chinese themselves say, all the inroads of modernism and the industrialization of the larger cities have made hardly an impress upon the general condition of the people. Gen. Chiang Kai-shek, the leader of the Nationalist forces, said in a recent speech that "out of the 400,000,000 Chinese, 360,000,000 are farmers and laborers. The rest are merchants and students."

One prime factor, a fundamental value in any estimate of China as a potential market, has ever eluded the investigator—that of the purchasing capacity of the masses. So many mouths to feed, so many bodies to clothe, so many hands to fill with tools; but how much to buy with? A recent survey of 150 farms, conducted by Nanking University, however, serves to throw a good deal of light upon what has been hitherto a very obscure subject. The 150 farms were located in one of the most prosperous regions of Central China, and while it is realized that the area surveyed comprises but a very small part of China's agricultural total—with conditions in North and West China undoubtedly differing in some details—the findings probably afford a fair basis for generalizations upon the whole of China's farm life. The surveyors covered a full year's operation of the farms studied and went at their task scientifically. The average size of the farms surveyed was 4.9 acres, while the ratio of crop area to total area was 93.2 per cent. Farm implements, the survey found, were of the most primitive nature, both in construction and material. The total value of tools and equipment per farm average $8.82. A summary of the year's business on the 150 farms surveyed revealed the average annual income and expenditure per farm as follows:

	Silver dollars
Farm receipts:	
Crop sales	81.50
Animal products sold	4.06
Other cash receipts	2.12
Products from the farm used by the family	70.15
Increase of capital	9.97
Total	167.80
Farm expenses:	
Hired labor (including board)	5.34
Value of family labor (unpaid)	19.14
Cash expenditures (other than hired labor)	41.19
Decrease of capital	1.47
Total	67.14

From these compilations the following interesting figures are adduced by the surveyors:

	Silver dollars
Farm earnings (farm receipts minus farm expenses)	100.66
Interest on capital ($762.38 at 8 per cent)	60.99
Labor earnings (farm earnings minus interest on capital)	39.67
Labor income (labor earnings minus value of farm products used by the family)	30.48
Income from other than farm sources	15.33
Family income (crop sales plus animal products sold plus other cash receipts plus income from other than farm sources minus cost of hired labor plus other cash expenditures)	56.48
Family earnings (farm receipts plus income from other sources minus all farm expenses except value of family labor)	135.13
Per cent return on capital invested (farm earnings minus value of operator's labor divided by average capital)	9.8

The total annual return to the Chinese agricultural family, averaging, the survey found, 5.35 persons, from its land and labor thus comes to scarcely 100 silver dollars. After deducting the interest on its invested capital, the family has just under 40 silver dollars, less than $4 gold per person, with which to meet all its needs not provided by the farm itself. Foreign-style goods, clothing, household equipment, implements of trade, social entertainments, and personal adornment must come out of less than $4 per year. One has here the reason why advertising campaigns for the sale of western appliances and delicacies in China are largely confined to the populations in or adjacent to the Treaty Ports, why efforts to introduce to the Chinese masses American notions having a vast popular appeal in the United States have generally failed.

COMMERCE. During 1926 the Chinese people exhibited in a marked degree their perseverance, power of reconstruction, and capacity for trading under adverse circumstances. Extensive military operations over large areas curtailed both trade distribution and industrial output. Floods in North China and the Yangtze Valley devastated crops, while boycotts, strikes, and irregular taxation were intimidations to business that tended to force up prices and increase the cost of living. A fall in silver exchange and the depreciation of local currencies at various times also served to multiply trade hazards. Despite these obstacles the combined value of China's export and import merchandise trade in 1926 totaled $1,511,272,000, an increase of 15.3 per cent over the preceding year, and of 11 per cent compared with 1924 when conditions were much more orderly. Both imports and exports shared in the advance. The aggregate value of Chinese produce sold abroad increased from 776,353,000 taels in 1925 to 864,295,000 taels in 1926; while China's purchases of foreign goods totaled 1,124,221,000 taels, a gain of 15.6 per cent over the value of imports in 1925.

In the accompanying table, which lists the leading items in China's import and export trade, it is shown that 16 commodities constituted 51.7 per cent of the total value of imports into China in 1910 and maintained an average of 87.4 per cent for 1913, 1920, 1925, 1926:

VALUE OF PRINCIPAL COMMODITIES ENTERING INTO CHINA'S IMPORT AND EXPORT TRADE

[*In millions of haikwan taels—000,000 omitted*]

Item	*1910*	*1913*	*1920*	*1925*	*1926*
IMPORTS					
Cotton piece goods	62	88	160	149	167
Raw cotton	4	3	18	70	91
Rice	32	18	5	61	91
Sugar	22	36	38	85	78
Kerosene	22	25	54	65	55
Metals and minerals ...	19	29	62	43	52
Woolen goods	3	5	5	15	30
Paper	6	7	14	19	28
Cotton yarn	62	77	79	40	26
Tobacco leaf	2	4	13	20	26
Flour	8	13	2	15	24
Cigarettes	7	13	22	18	21
Wheat	..	3	..	4	18
Machinery	7	5	23	16	17
Artificial indigo	5	10	15	15	13
Lumber, softwood	3	4	9	8	10
EXPORTS					
Raw silk	36	73	68	140	145
Beans and products ...	49	52	84	92	105
Eggs and products	4	6	22	32	39
Peanuts and products .	3	8	15	29	35
Raw cotton	28	16	9	30	29
Tea	36	34	9	22	26
Cotton piece goods ...	..	3	9	18	25
Silk piece goods	13	13	16	15	21
Hides and skins	18	21	18	17	19
Wood oil	..	4	7	17	15
Bristles	4	4	6	10	11
Furs	2	2	3	12	10

The relative value of each country's share in the imports and exports of 1910 and 1926 was as follows:

RELATIVE POSITION OF THE PRINCIPAL COUNTRIES IN CHINA'S IMPORT AND EXPORT TRADE IN 1910 AND 1926

Countries	*1910* *Imports* *Per cent*	 *Exports* *Per cent*
Japan (including Chosen)	17.00	17.00
British Empire:		
Great Britain	15.20	5.00
Hongkong	36.90	28.70
India	9.40	1.30
Malaya	1.60	1.70
Canada	.20	.50
United States	5.30	8.40
France and French Indo-China	1.80	10.50
Germany	4.40	3.40
Netherlands and Netherland East Indies	1.40	2.10
Belgium	1.40	2.40
Union of Socialistic Soviet Republics (Russia)	3.50	12.30
All other	1.90	6.70
Total	100.00	100.00
	1926 *Imports* *Per cent*	 *Exports* *Per cent*
Japan (including Chosen)	34.04	30.00
British Empire:		
Great Britain	10.28	6.46
Hongkong	10.67	10.76
India	7.03	1.84
Malaya	.88	3.48
Canada	2.13	.02
United States	16.46	17.37
France and French Indo-China	6.08	10.01
Germany	4.06	2.05
Netherlands and Netherland East Indies	3.72	3.14
Belgium	1.27	.41
Union of Socialistic Soviet Republics (Russia)	2.00	7.42
All other	1.38	7.04
Total	100.00	100.00

Notwithstanding extremely adverse circumstances, China's exports to the United States during the first seven months of 1927 registered an increase in value of $4,671,207 over figures for that period in 1926. The total value of exports for this period in 1927 reached $73,723,439, compared with $69,052,232 in 1926.

EXPORTS OF PRINCIPAL COMMODITIES FROM THE WHOLE OF CHINA TO THE UNITED STATES

Item	*First 7 months of—* *1926*	 *1927*
Silk, raw, wild, and waste ..	$24,452,202	$18,842,333
Furs, dressed and undressed	11,757,622	14,785,954
Wood oil	4,252,109	7,239,263
Goat and kid skins	5,876,216	5,829,352
Sheep and lamb skins	464,611	5,275,402
Sheep's wool	1,997,396	4,868,572
Egg products	2,461,680	2,662,044
Bristles	2,549,940	2,381,092
Wool carpets	2,851,456	2,103,745
Peanuts	1,747,975	1,570,209
Walnuts	428,010	1,155,551
Sausage casings	1,840,838	1,459,294
Raw cotton	421,866	1,449,997
Cotton laces and embroideries	1,369,858	1,166,918
Antimony, regulus	1,771,738	1,106,804
Tea	1,201,889	688,680
Human hair	555,928	620,656
Hair nets	567,059	354,697
All other	2,485,839	162,876
Total	69,052,232	73,723,439

FINANCE. No definite or accurate statement of China's fiscal system or present financial situation can be given in its present period of political chaos. China has never had a budget, in the sense in which the term is used in western countries. The budgets published since the establishment of the Republic do not indicate what the revenues and expenditures actually were—for those budgets were nothing but a hope that the revenues and expenditures would correspond with the estimates. China's budgets are practically meaningless, except that they may measure expectations under normal conditions.

The difficulties of developing a national budget system in China are obvious to any one familiar with Chinese currency. The numerous units of currency—none on a stable basis—are the main obstacle to a fiscal system, and no currency reform can be expected until a strong central government is set up with sufficient powers to enforce its currency regulations. Moreover, no fiscal policy can be enforced until a central government has the power to levy and collect the taxes in the provinces and bring these into the national treasury. The Central government in China, both before and particularly since the establishment of the republic, has not been able to collect taxes; only a small portion of the taxes reached Peking, the major part having been retained by numerous military governors who defied the authority of the Central government. In order to meet the growing expenditures, the Chinese government resorted to foreign borrowings, which piled up an enormous sum with no prospects for repayment. The only revenues now collected by the government are those administered by foreigners under special agreements and treaties with China.

A statement of the Chinese Government Financial Readjustment Commission (October, 1925) gives the following as the principal sources of revenue derived by the Chinese government: (1) The maritime customs and the native customs within the 15-mile limit; (2) the native customs outside the 15-mile limit; (3) the Salt Gabelle; (4) the wine and tobacco taxes; and (5) the stamp duty. All told, the amount of revenue normally collected each year from all these sources amounted to about 209,000,000 silver dollars. The net amount remitted to the Central government falls far short of this sum. Only the customs revenue and receipts of the Salt Gabelle remain partially intact, although both seemed impaired in 1926. The revenue from the maritime customs in the calendar year 1925 amounted to 78,100,000 haikwan taels and from the native customs (within the 15-mile limit), 4,500,000 haikwan taels. The total collected from the Salt Gabelle in 1925 amounted to 73,634,000 silver dollars of which only 32,935,000 reached the Central government.

China's national debt is as uncertain a quantity as are its revenues. Various estimates of the debt have been made from time to time by both private and public bodies, but no authoritative statement has yet appeared. As to national loans, the Chinese ministry of finance stated that they amounted to $1,615,256,000 silver on Dec. 31, 1925. Another authority placed the total debt at $2,256,537,960 on the same date.

COMMUNICATIONS. During 1925, 167,746 vessels of 128,202,625 tons entered and cleared Chinese ports. China has about 9370 miles of railway, including 1857 miles in Manchuria. Chinese railway operations in 1926 as in 1925 were extremely limited and revenue derived was accordingly small; in the majority of instances the railways were unable even to earn their operating expenses.

GOVERNMENT. During 1927, China was virtually without a constitution and indeed practically without a government at all. There was a very shadowy attempt at government with headquarters at Peking and there was the Nationalist government of Canton, representing the Kuomintang, or People's Nationalist Party, which controlled all of Southern China. The Cabinet of the Northern government as formed on Jan. 12, 1927, was made up as follows: Premier and Minister of Foreign Affairs, Dr. Wellington Koo; Finance, Tang Ehr-ho; Interior, Hu Wei-teh; War, General Ching-hui; Navy, Admiral, Hsi-Kwei; Communications, Pan Fu; Justice, Lo Wen-kan; Education, Jen Kao-Ching; Agriculture and Commerce, Yang Wen-kai.

HISTORY

A general summary of the situation in China during 1927 would reveal that there was no government which ruled the entire country. Practically speaking there were three armies in control of three different sections of the country: one in control of Peking, under the leadership of Chang Tso-lin; the Nationalists in the south under the command of Feng-Yu Hsiang; and the army of the Governor of Shansi, Yen Hsi-shan, who seemed to be losing his neutrality and to be definitely put out of the Chinese struggle by Chang Tso-lin. Generally the Nationalists were successful in the fighting of the year, but as it drew to a close they seemed to be a long way from complete domination. Many observers felt that the size of China and the number of Chinese will prevent the unification of the country.

SITUATION AT THE BEGINNING OF THE YEAR. The chief interest in the early months of the year was the intense activity on the part of foreign nations with interests and nationals in China to take all precautions to prevent loss of life and destruction of property because of the civil war and its approach to Shanghai. Practically all the countries involved sent troops and warships to the danger zones and then attempted to negotiate with one or both of the chief factions in the country. As noted in the preceding YEAR BOOK, notes were dispatched to the Nationalists late in 1926. These were based on a more or less divided attitude toward Northern and Southern China, but leaned rather more toward the Northern section because that part was pro-foreigner. The Nationalists rejected the proposition and at the end of January offered to negotiate separately with the powers. Then followed a series of notes, the first of which was from Great Britain, offering to give up the old systems of tariff control and extraterritoriality on the grounds that they were antiquated. The Nationalists broke off negotiations because of the movement of British ships and troops to the coast cities. The Peking government also complained of the troop movement declaring that it was a violation of the Washington Treaties and the covenant of the League of Nations.

On January 26 Secretary of State Kellogg in Washington issued a statement of the American position in which he stated that the United States had always desired the unity, the independence and prosperity of the Chinese nation. The Government of the United States "is ready now to continue the negotiations on the entire subject of tariff and extraterritoriality. The only question is with whom shall it negotiate. As I have said before, if China can agree upon the appointment of delegates representing the authorities or the people of the country we are prepared to negotiate such a treaty." France stated that she stood for a policy of "firm and prudent peace." The Japanese government in a statement of its policy declared that it was opposed to collective action in China and would use force only if absolutely necessary to protect Japanese citizens. Out of the maze of notes and replies it seemed as though the Nationalists were particularly bitter against Great Britain as being the chief cause of their troubles with foreigners in general.

The chief cause of foreign troubles was the struggle for Shanghai between the Northern and Southern forces and the refusal of the Nationalist army to guarantee that the city district would be a neutral zone on the request of the American ambassador. The fears of the foreigners were to some extent without foundation because, on March 21, the Nationalists took the city with little actual fighting. The conquering army looted the Chinese quarters but prudently stayed away from the barbed wire entanglements of the foreign quarter. On March 23, the Nationalists also captured Nanking further up the Yangtze River and the last important city in the hands of the Northerners south of that river. The conquest was not as peaceful for the foreigners as that of Shanghai had been. The British consulate was wrecked and the American consul and other American citizens took refuge on the property of the Standard Oil Company overlooking the river. They were fired upon here and warships in the river were compelled to open fire on the attackers and drive the mobs away, effecting a rescue. The American Admiral in command, Hough, sent an ultimatum to the Nationalist forces demanding adequate protection of foreign lives and property and demanding the presence of the Cantonese general aboard ship to negotiate concerning the outrages. The American government immediately dispatched more troops and ships to back up Admiral Hough's position. After a checkup had been made it was found that seven American citizens had been killed. The Nationalist government blamed the outrages on reactionaries and counter-revolutionaries, who committed the acts before the Nationalists were fully in charge of the city. The Nationalist government expressed full readiness to negotiate the matter with the United States and other powers.

With the conquest of Shanghai and Nanking, however, the Nationalists did not completely pacify the territory south of the Yangtze, because the party was broken asunder by internal strife. Chiang Kai-shek, a moderate radical, if there was such a class, was openly opposed by the radical nationalist government in Hankow, the centre of the southerners' government. The government apparently had come under the sway of Bolshevist influences and Chiang Kai-shek attempted to wipe out the communistic influences by executions and arrests. The result was a break in the Kuomintang party which forecast a lack of the unity necessary if China was to be pacified under the leadership of that party.

A temporary peace permitted the Nationalists to move further north and establish their lines on the Yellow River, which made it appear in June that the days of the Northern group under Chang Tso-lin were numbered. As a matter of fact the press reported on numerous occasions that he was ready to negotiate with the Nationalists if they were prepared to give up their communistic ideas and arbitrate on the principles and ideals of Sun Yat-sen.

Situation in the Summer. The summer months saw the reopening of the temporary healing of the breach between the two forces of the Nationalists and, consequently, the capture of Peking was prevented. The radical Hankow forces definitely broke with Chiang Kai-shek, who lost much prestige by his defeat at the hands of Sun Chuan-fang which forced him back in his advance. As a result of his loss of military position and because of the internal struggle within his party Chiang Kai-shek resigned his post as generalissimo of the Kuomintang armies. In his statement of resignation he requested that the party heal the wounds which are dividing it, continue the struggle against Northern China and expunge the Bolshevist influences which were "boring from within" to destroy the magnificent organization the Kuomintang had built up. The leadership of the Nationalist troops was taken over by several leaders, whenever they could get sufficient followers.

Situation at the Close of the Year. With the retirement of Chiang Kai-shek to Japan, where he established cordial relations with the Japanese government, the general advance of the Nationalists seemed to be stopped and to have lost its driving force. The Northern forces were successful in driving the Nationalists back across the Yangtze, where the armies were split up among various leaders. The Kuomintang movement had apparently completely collapsed. Marshal Chang Tso-lin's position in Peking, while safe from further attacks from the Nationalist armies, was threatened in the fall by the advance of General Yen Hsi-shan, the independent leader of Shansi province, who up to this time had remained neutral in the civil war struggle. He made a sortie from Shansi in the general direction of Peking but after taking several towns under the control of Chang he was forced to retreat and see his own province invaded. As the year closed Chang seemed to be firmly seated in the Peking region, while the remainder of the country was the prey to "war lords" and generals who had sufficient men and money to remain in the field. The foreign interests seemed in no danger of attack. See Trade-Unions.

CHITA. See Far Eastern Republic.

CHLORTHYMOL. See Chemistry, Industrial.

CHOATE, Charles Francis, Jr. American lawyer, died at Boston, Mass., November 30. He was born at Cambridge, Mass., Oct. 23, 1866, and graduated at Harvard in 1888. Two years later he was admitted to the bar in Suffolk County, Massachusetts, and he rose to a leading position among the attorneys of Boston and of the United States. After his success in the law had become well established, he became identified with several large corporations, and at the time of his death he was a director of the American Telephone and Telegraph Company, the New York, New Haven & Hartford R. R., the Merchants' National Bank of Boston, and other interests. In 1908 he was appointed a regent of the Smithsonian Institution, Washington, D. C., and held office from that time on.

CHORAL SOCIETIES. See Music.

CHOSEN. See Korea.

CHRISTIAN CHURCH. A church originating in three religious movements, that of the Rev. James O'Kelly of Virginia, who, in 1792, opposed Methodist bishops, and those of the New England Baptist, Abner Jones, who organized a separate church in 1801, and of the Kentucky group, formed in 1804. These groups eventually united, all holding that minor points of belief should be subordinated to Christian brotherhood. A General Convention meets every four years, and convened at Urbana, Ill., in October, 1926. Biennial conventions are held in districts, each consisting of a number of States. The church carries on home and foreign missions, educational work, publication, evangelism, Christian unity work, social service, and other general activities. Its home mission field includes New Americans in the East, the lumber camps in Washington, Indians, mountaineers, and negroes; its foreign field, Japan, Porto Rico, and South America. It maintains eight educational institutions. Its publishing house at Dayton, Ohio, issues, among other periodicals, the oldest religious newspaper in the United States, the *Herald of Gospel Liberty*. In 1927 the Christian Church had 1141 churches, 1097 ministers, and 110,326 members, and a total revenue of $1,617,468. Its Sunday schools, numbering 978, had 102,131 pupils.

CHRISTIAN ENDEAVOR, International Society of. Formerly the United Society of Christian Endeavor; the name was changed to International Society of Christian Endeavor, August, 1927, by vote of the Board of Trustees. It includes all Christian Endeavor societies in North America, and is a member of the World's Christian Endeavor Union, which comprises Christian Endeavor societies in every country on the globe. The first society was organized in Williston Congregational Church, Portland, Me., Feb. 2, 1881, by the Rev. Francis E. Clark (q.v.), who was for many years president of the international and world's organizations. In 1925 he became president emeritus, and he died May 26, 1927. The most recent biennial convention of the international society was held at Cleveland, Ohio, July 4–9, 1927, with a total attendance of more than seventeen thousand. It planned to meet at Kansas City, Mo., July 4–9, 1929.

Recent activities of the international society included the establishment of a Department of Christian Vocations, under the direction of the Rev. Stanley B. Vandersall, which during the year gave vocational counsel to more than three thousand high school and college young people; a Department of Travel and Recreation, under the direction of Carroll M. Wright, which supplied free of charge monthly church-centred recreation service to Christian Endeavor societies and to interested church workers; it also conducted World Friendship Tours to Europe for young people at cost. The society promoted systematic and proportionate giving through the Tenth Legion, in which 73,859 were enrolled during the year. It emphasized regular habits of prayer and daily Bible reading, through the Quiet Hour, in which 252,622 members were enrolled.

The organization of the international society comprised an active organization for each State and each Canadian province. These in turn were divided into 1200 city, county and district Christian Endeavor Unions, each including 400 to 500 societies. There were in 1927 approximately 80,000 Christian Endeavor societies throughout the world, with a membership of 4,000,000. The officers for the year were: President, the Rev. Daniel A. Poling, D.D.; vice presidents, the Rev. William Hiram Foulkes, D.D., and the Rev. Howard B. Grose, D.D.; treasurer, A. J. Shartle; secretary, E. P. Gates. The headquarters of the society are at Mount Vernon and Joy Streets, Boston, Mass.

CHRISTIANS. See Disciples of Christ.

CHRISTIAN SCIENCE. A system of metaphysical or spiritual healing discovered by Mrs. Mary Baker Eddy in 1866. The first church was established by Mrs. Eddy in Boston in 1879 and given a charter by the Commonwealth of Massachusetts. In 1892 it was reorganized as a voluntary religious association known as the First Church of Christ, Scientist, in Boston, called more frequently by its adherents "The Mother Church." Mrs. Eddy wrote the textbook of the movement, *Science and Health with Key to the Scriptures*, published in 1875. The Sunday services of the church are conducted by a first and second reader, the first reading from the textbook, and the second from the authorized version of the Bible. In 1927 there were over 8887 practitioners of Christian Science in the United States and other countries, who devoted their entire time to the healing of the sick through prayer.

A Board of Directors administered the affairs of The Mother Church. Its annual meeting was held in Boston, June 6. Reports indicated expenditures totaling $1,286,984.76 from the General Fund of the Church during the year, and $463,058.48 from the Permanent Special Funds. During the fiscal year ending May 31, 90 churches and Christian Science societies, including two university societies, were recognized as branches of The Mother Church; 20 new organizations were located in Europe, 2 in Africa and 1 in Australia. The total number of recognized branches, including 29 college and university societies, was 2277. Three departments conduct the principal activities of the movement: The Board of Education, Board of Lectureship, and Committee on Publication. The educational board instructs and authorizes students to teach Christian Science; the Board of Lectureship consists of 23 members who deliver free lectures on Christian Science throughout the world. During the year 3573 lectures were delivered, of which 3182 were in the United States and Canada, and 391 in foreign fields.

The Committee on Publication aims to correct impositions on the public in regard to Christian Science. It also endeavors to guard the rights of Christian Scientists against restriction by public authority. The Christian Science Publishing Society, which publishes and issues the authorized literature of The Mother Church, operates under a deed of trust granted by Mrs. Eddy; its affairs are now administered by a Board of Trustees according to the Manual of the church. The publishing society issues the daily paper of the movement, *The Christian Science Monitor*; other periodicals include: *The Christian Science Journal*, *The Christian Science Sentinel*, *Der Herold der Christian Science*, and *Le Héraut de Christian Science*. The Benevolent Association of the church conducts a sanatorium, where 1826 guests were provided for during the year. A training course is also conducted for nurses. The headquarters of the church are at 206 Massachusetts Avenue, Boston. Archie E. Van Ostrand was president of The Mother Church for the year ending May 31, 1927.

CHRISTMAS ISLAND. An island belonging to Great Britain in the Indian Ocean, lying 190 miles southwest of Java, annexed to the Straits Settlements in 1889. Area, 62 square miles; population, estimated in 1924, 995. Christmas Island is important because of its very large deposits of phosphate of lime which constitute its only exports. Exports in 1925 amounted to £203,103 and imports to £57,344. The chief imports are tools, machinery, railway materials, and lorries. For administrative purposes the island is connected with Singapore.

Christmas Island is also the name of the largest atoll in the Pacific Ocean. It belongs to the British colony of Gilbert and Ellice Islands.

CHROMIUM. See Chemistry, Industrial.

CHURCHES OF CHRIST. See Disciples of Christ.

CHURCHES OF CHRIST IN AMERICA, Federal Council of the. See Federal Council of the Churches of Christ in America.

CHURCH OF ENGLAND. See England, Church of.

CHURCH OF GOD. See Adventists.

CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS, Mormon Church. See Latter Day Saints, Church of.

CIGARS AND CIGARETTES. See Tobacco.

CINCINNATI MUSEUM OF FINE ARTS. See Art Museums.

CINCINNATI, University of. A coeducational institution of higher education at Cincinnati, Ohio; founded in 1870. The registration in the autumn of 1927 was 8604, distributed as follows: graduate school, 205; liberal arts, 1221; evening courses in liberal arts, 872; education 1158; engineering and commerce, 1399; evening commerce courses, 2808; applied arts, 294; household administration, 73; law, 196; medicine, 273; nursing and health, 105. In the summer school the enrollment was 2002. There were 551 members on the faculty. The endowment funds of the University for the fiscal year 1926 were $6,109,362.56, and the income for the same period, $1,653,682.66. The library contained 136,690 bound volumes and 40,000 pamphlets. President, Frederick Charles Hicks, Ph.D.

CINEMATOGRAPH. See Moving Pictures.

CITIES, Financial Statistics of. See Municipal Government.

CITROUS FRUITS. See Horticulture.

CITY CHARTERS, City Government, etc. See Municipal Government.

CITY GOVERNMENT. See Municipal Government.

CITY MANAGER. See Municipal Government.

CITY PLANNING. In his presidential address before the National Conference on City Planning at Washington in May, 1927, John Nolen stated that plans had been made for 157 cities and that planning commissions had been established in 390 cities, the latter including every state in the Union except Arkansas, Idaho, Mississippi, Nevada, New Mexico and North Dakota. It should be understood that many of the plans had never got beyond the paper stage, and that most of the city planning commissions had little besides advisory powers. Neither the number of cities for which plans had been made nor the number of planning commissions represented the activities of the cities of the country in such improvements to the city plan as street widening and extension which were going on in nearly every municipality at an immense total of expense for real estate taking and for construction work.

Chicago continued to lead in improvement to the major street plan, with St. Louis as a probable second (see Year Book, 1926). In each city the improvements to the city plan had been laid out by planning commissions. The same was also true in many other cities, but in hundreds of cases street widening and extension were being carried on as a part of the ordinary activities of street and engineering departments. The work of most, if not all, of the regional planning commissions noted in the 1926 Year Book was being continued. During the year, a model city and regional planning enabling act was completed by the Advisory Committee on City Planning and Zoning of the U. S. Department of Commerce, which stands ready to supply copies on application. The New York Legislature by Chapter 175 Laws of 1927 authorized the towns of the state, outside of incorporated cities and villages, to appoint planning commissions with power to approve plats and, when authorized by the respective town boards or governing bodies, to approve plans for parks, streets and subdivisions, and to make zoning regulations. The planning commission would also have the right to make studies and recommendations for the planning and development of their towns. Excess condemnation powers, sometimes of material aid in city planning, were tendered to counties in New York State by the adoption of a constitutional amendment at the November election, the vote being 1,065,000 for to 534,000 against. At the same time, an amendment to the city charter of New York was adopted which modifies existing excess condemnation authority in the interest of improved housing.

Zoning. The most notable features under zoning were the continued support of its legality by the United States Supreme Court and similar support by State courts, the latter in some cases based on the U. S. Supreme Court decision and in others the continuation of stands already taken by State courts; also, the adoption by popular vote of a constitutional amendment authorizing zoning in New Jersey, by a vote of nearly 3 to 1. This vote was significant because, until the highest court of New Jersey virtually nullified zoning, that State led in the number of zoned cities. In Virginia, the legislature authorized the supervisors of Arlington County, adjoining the District of Columbia, "to regulate the use of land and of buildings or other structures and the height thereof and also to establish building lines and to regulate and restrict the construction and location of buildings and other structures."

Following its 1926 decision (see 1926 Year Book) upholding the zoning ordinance of Euclid, Ohio, the U. S. Supreme Court in 1927 supported zoning ordinances in three other cities in as many different States. The Euclid decision upheld zoning in general as well as the specific ordinance in question, the plaintiff in the Euclid case urging that the entire ordinance as well as zoning in general was unconstitutional. On

March 21, the U. S. Supreme Court sustained a Minneapolis ordinance in respect to the exclusion of a four-family apartment house from a one-family residence district. There was no written opinion in this case, the court referring to its basic decision (Village of Euclid, Ohio, v. Ambler Realty Co., 272 U. S. 365). In Zahn v. Board of Public Works of Los Angeles (47 Sup. Ct. Rep. 594) the U. S. Supreme Court supported a decision of the highest Appellate Court of California, which in turn had overruled a lower State court, in the exclusion of a proposed business building from a residence district.

On May 31, 1927 (2 *U. S. Daily*, 597), the U. S. Supreme Court upheld the zoning ordinance of Roanoke, Va., as regards a requirement that buildings should be set back a certain distance from the street line. Two Federal district court decisions upholding the zoning ordinance of Minneapolis, Minn., were rendered on September 8 (reported in full in the *United States Daily* for Sept. 21 and 22, 1927). This ordinance, as already stated, had already been upheld by the U. S. Supreme Court.

In one of these cases, the American Wood Products Co. attempted to compel the building inspector of Minneapolis to grant a permit for a building to be used for factory purposes in a district zoned for mutiple-family residences, where it and a co-complainant already had buildings in use for business purposes and wished to extend them. In the other of these two cases, the complainant wished to establish an oil-filling station in a district zoned for residences. In both cases the judge accepted evidence to the effect that the properties in question were of less value for residence than for business purposes, but nevertheless he upheld the ordinance —although his personal opinion was that while "the theory of zoning ordinances is good," yet "in practical operation, they must almost necessarily give far too little consideration to the rights of many individual property owners."

Indicative of the fact that the federal courts take into account the reasonableness of zoning ordinances is a decision of the Circuit Court of Appeals for the Sixth Circuit declaring the exclusion of an orphanage on the cottage plan from a single-family residence district in the village of University Heights, Ohio, to be unreasonable (*U. S. Daily*, Aug. 5, 1927). The State Supreme Court of Missouri, on July 11, reversed itself in conformity with the Euclid decision of the U. S. Supreme Court. In earlier cases, the Missouri Court had held that owners of property reduced in value by zoning ordinances were entitled to collect damages from a city.

Number of Zoned Cities. In continuation of earlier bulletins, the U. S. Department of Commerce, through its Division of Building and Housing, brought its data on zoned cities and zoning litigation down to July, 1927. The bulletin showed 553 zoned cities in the United States, with a total population of over 30,000,000, or more than 55 per cent of the urban population of the United States. Of these 553 cities, 52 have populations of 100,000 while at the other extreme 49 have populations of less than 1000.

By States, New York State leads with 93 zoned municipalities, and is followed by New Jersey with 75, Illinois with 56, California and Massachusetts with 54 each, Pennsylvania with 32, while Ohio stands seventh with 29.

Bibliography. The new books in this field were Baker, *Legal Aspects of Zoning* (Chicago); Nolen, *New Towns for Old* (Boston).

CIVIC FEDERATION, NATIONAL. See National Civic Federation.

CIVIL ENGINEERS. AMERICAN SOCIETY OF. An association of professional engineers, founded in 1852 to advance engineering and architectural knowledge and practice, maintain high professional standards, and encourage intercourse between men of practical science. It is made up of: Members, including civil, military, naval, mining, mechanical, electrical, and other engineers in active practice twelve years, and qualified to design as well as direct engineering work; associate members, those who have been practicing eight years; juniors, beginners in the profession; affiliates, persons qualified to coöperate with engineers, but not themselves engineers; fellows, contributors to the permanent funds, who are not eligible to membership; and honorary members, persons of acknowledged eminence in engineering. Four general meetings are held each year: The annual meeting held the third week in January, in New York, at which the results of a previous ballot for officers are announced, reports of committees received, and other business transacted; the annual convention held during the summer, with general business and technical sessions, and interesting excursions; and the spring and summer meetings. In addition, there are monthly meetings in New York City, as well as meetings held by the local sections.

In 1927 there were 46 local sections, and 90 affiliated student chapters in colleges throughout the country. The membership, as of November 15, 1927, was 12,590, divided as follows: Honorary members, 15; members, 5378; associate members, 5619; juniors, 1429; affiliates, 141; fellows, 8. The annual meeting was held on January 19–21; and the spring meeting in Asheville, N. C., April 20–22, at which the important business included a consideration of water supply, highways, and a conference on student chapters. Notable features of the annual convention in Denver, Colo., July 12–16, were, a conference of local section representatives, and discussion of city planning, highway, irrigation, and surveying and mapping questions. The autumn meeting was held on October 12–15, in Columbus, Ohio, and gave most of its attention to the question of flood control, with special reference to the Mississippi River. At these meetings nine technical divisions presented papers and carried on independent committee work. Sixteen special committees, enlisting 100 members, followed out investigations during the year. Eighty-five members of the Society served on joint committees and boards with representatives of other societies, for research and standardization. The Society publishes monthly *Proceedings*, containing the papers presented at meetings, with discussions, and items of general interest. At the end of each year, the papers and discussions are republished in the annual volume of *Transactions*. The Society also issues an annual *Year Book*. The officers for 1927 were: President, John F. Stevens; vice presidents, Allen Hazen, Walter L. Huber, John C. Hoyt, Arthur E. Morgan; secretary, George T. Seabury; treasurer, Otis E. Hovey. The headquarters of the Society are in the Engineering Societies Building, at 33 West 39th Street, New York, of which, with three other national engineering societies, it is joint owner, as well as of the engineering library there installed.

CIVIL SERVICE AND PERSONNEL PROBLEMS. There was a general impression prevailing during the year in the United States that the extension of the merit system was neither so strong or so extensive as it should be to keep up with the growth and development of government functions. Although 44 State legislatures were in session in 1927, only Texas and Pennsylvania had bills introduced to place the State service under civil service regulation and neither State enacted a law.

In the Texas legislature three bills were introduced; one was drafted by the National Civil Service Reform League and endorsed by civic organizations in the State. At a special session of the legislature, a compromise bill was reported by committees of the House and Senate, that provided for a law to be administered by the State Board of Control and that applicants for examinations must be recommended by their local city council, or, if they did not reside in cities, by the County Commissioner's Court. It also provided for the exemption of all "confidential" positions. This bill was passed in the House and lost after extensive and sharp debate in the Senate through a vote to adjourn to a time within 24 hours of the close of the session. Under the Senate rule that no bill except conference reports may be voted on during the 24 hours before final adjournment, no further consideration could be given to it. Senator Pollock, who had introduced a civil service bill at each of the last three sessions, but failed to get them out of committee, predicted that a civil service bill would pass at the next session. The League urged that his particular bill be defeated for the reason that in all probability it would not bring a real merit system into operation.

The civil service bill rejected by the Pennsylvania legislature would have established a State Personnel Commission of three members whose functions would include ascertaining and recording the duties, responsibilities and authority appertaining to positions in the classified service and classifying such positions.

In Colorado a proposal to submit to the voters at the next general election a civil service amendment to the state Constitution was defeated. The amendment proposed differed from the constitutional provision in force in that it placed all court employees in the unclassified service and that it eliminated the clause providing for the appointment of the person standing highest on the eligible list. It provided for removal "after trial," but did not state before whom or what body the trial should be held.

California enacted a law providing, in place of the present single civil service commissioner, a commission with one executive member and two associate members. Four states introduced bills to apply the merit system to city fire departments, but none was passed. Veteran preference bills were frequent. A Montana bill extended the preference to veterans' widows, and a Massachusetts bill gave a preference to veterans of Indian wars, but these were defeated. New Jersey enacted a law providing for the standardization of county and city salaries. Massachusetts defeated a bill establishing a classification of the appointive officers and positions of the State into services, groups and grades, and adopting the salary levels recommended by Griffenhagen and Associates, Ltd., and providing for the application and administration of such classification.

In Michigan, Wayne County, in which Detroit is situated, was placed under a civil service law, that provides that the commission shall consist of three members to serve for overlapping terms of six years, each appointed by the Board of Supervisors. Unfortunately, the Commission is not given power to certify payrolls, but it is given the power to hear appeals from removed employees and to reinstate them.

An example of more or less freakish bills frequently introduced was one introduced in the legislature in Massachusetts that would have provided that the civil service commissioner "shall not certify a married woman for appointment or authorize the provisional or non-competitive appointment of a married woman, unless she established to the satisfaction of the commissioner that her husband is physically or mentally unable to support her or that she is living apart from her husband for 'justifiable cause.'" The unfortunate state civil service commissioner, therefore, would be under the burden of determining whether or not a married woman was living apart from her husband for a "justifiable cause."

A Nebraska measure provided that no married woman was available for the position involved unless the combined salaries of the woman and her husband were less than $2000 a year. The Wisconsin legislature considered a bill which provided that candidates for election to the office of County Highway Commissioner must first pass an examination conducted by the State Highway Commission before their names were placed on the ballot.

Alameda County, Calif., adopted by popular vote (41,237 to 34,302) a new charter for the government of the county, at the November election, 1926, and thus brought into existence the fourth county civil service commission in the United States. The others are in Cook County, Ill., Los Angeles County, Calif., and Milwaukee County, Wis. Oakland is the largest city in Alameda County, and political strife there over the operations of the Alameda County civil service provision seemed to have started soon after the act took effect on Jan. 1, 1927. The County Board of Supervisors appointed a Commission, one of whose first acts was to determine the jurisdiction of the Commission over deputies of the Sheriff. The Commission, upon the advice of the District Attorney, assumed control over the appointment of all the new deputies, but the new sheriff refused to accede to the jurisdiction of the Commission because the Commission certified only twenty-one names for nineteen vacancies. He contended that the charter provision required a certification of three names for each vacancy, and that therefore for nineteen vacancies there must be certified fifty-seven names. One of the Sheriff's new appointees, whose number was 45 on the eligible list, claimed the right to certification for one of the nineteen vacancies, and was to sue the Commission to compel it to certify him.

The charter provision was defective in that it did not give the Commission any control over the certification of payrolls, and its power to enforce the provisions of the law depended entirely upon the coöperation given it by the County Auditor. The Commission seemed to have the support of the legal authority of the county and the District Attorney advised the County Auditor not to pay the salaries of any of the appointees of the Sheriff whose employment was not approved by the Civil Service Commission.

Cincinnati's Civil Service Commission made an effort to eliminate political activity on the part of municipal employees in the classified civil service. In a letter the Commission stated that "as no employee in the classified service of the city is permitted to engage in such political activity, it would appear that you have violated the civil service law and rules of this commission which forbids any activity of this character whatever on the part of classified service-employees." It was said that each of the persons involved (some 200) would be given a hearing before the commission and an opportunity to explain the alleged political activity.

An attempt was also under way to simplify the organization of the municipal government of Cincinnati. The 26 departments and bureaus of the municipal government would be coördinated and consolidated into 12 distinct departments, all under the jurisdiction of the City Manager, providing the new administrative code was formally adopted by the City Council. The reorganization programme contemplated the creation of a "Personnel Department" in which all activities respecting the management of the personnel of the city would be concentrated.

The President of the Commission announced that a reclassification of the Cincinnati city service, made under the direction of the Civil Service Commission, was nearing completion. The new classification, it was said, would group the city employees under 369 distinctive classes of positions. This would bring about a reduction of approximately 100 payroll titles that had hitherto been in use. The new classification was divided into seven major subdivisions or services; namely, clerical and administrative, engineering, public health, welfare, police and fire, domestic and janitorial, and skilled trades and labor.

Mr. Gamble described the need for the classification as follows:

> The primary object of the classification is, of course, to provide the Civil Service Commission with a necessary working tool. We have never had adequate information regarding the positions we are required to fill. Department heads will find the classification useful in requisitioning new employees. It will also prove of substantial value in clarifying and simplifying the budget and the city payrolls. Members of the city council and the public will know definitely what kinds of positions are being appropriated for. The new titles have a definite meaning; some of those now in use are not at all descriptive of the work involved. In the case of the new classification of senior stenographer, for example, it is found that sixteen different payroll titles are now used to describe this type of employment.

These acts of the Cincinnati Civil Service Commission were directly in line with the recommendations made by the Secretary of the National Civil Service Reform League in a report made on an investigation of the work of the Cincinnati Commission in 1926.

This was a meagre showing when the number of states, counties, municipalities and other political subdivisions was considered, with the extension of government into so many new directions. There was a feeling of disappointment to be noted on the part of the Federal Commission and similar bodies, the Bureau of Public Personnel Administration, the National Assembly of Civil Service Commissions and the National Civil Service Reform League and its allied organizations. The merit system began its advance some forty-four years previously with the passage by Congress of the Pendleton Civil Service Act. The aggressive activity of the leaders of the movement in the first twenty years was responsible for its rapid spread. Its jurisdiction was extended over the greater part of the Federal service, leading cities were placed under its control and several States adopted it. At one time there were 11 States with civil service commissions; in 1927 there were nine, Kansas and Connecticut having repealed their laws. The zeal that carried the system forward at the hands of Curtis, Schurz, Eaton, Bonaparte, and Roosevelt had subsided. The aggressive leaders were gone and there were few to take their places. Thirty-nine State governments lie outside the fold and nearly a dozen cities having more than 100,000 inhabitants have their employees chosen for political reasons.

There was good reason to believe that, in most parts of the United States and Canada, the merit system, as administered by a central personnel agency, no longer commanded the general public interest it did a generation previously. Laws providing for the system having been enacted in the most populous jurisdictions, the public was hardly likely to maintain a keen interest in the technical phases of their administration. Those adversely affected or unsympathetic with the idea, on the other hand, are provided with a definite target for their arrows. Nevertheless the all but universal disappearance of the old zeal for a measure designed to improve public administration can but be a cause for concern.

Along with a marked falling off in popular esteem however, went a truly remarkable improvement in the technical phases of public personnel administration. Even the weakest public employment agency is likely to do a number of things better to-day than the most advanced were able to do them fifteen years ago. The duties classification, essential for any scientific attack on personnel problems, is universally regarded as desirable by public personnel administrators and, in a crude or refined form, is usually available for working purposes; this is in marked contrast to the commercial world, where the "job analysis" idea has as yet won only scant recognition. The best tests used even ten years ago are now eyed askance when they have not been discarded for more efficient measuring devices. The public, even though less interested in the merit system, ought, in the opinion of the Bureau of Personnel Administration, to be made aware of the improvements in the handling of technical personnel problems.

Practical nullification of the merit system, in spite of charter provisions intended to provide for it, seems to be the result of bad administration under the city-manager form of government provided in Kansas City. The Charter provides for the appointment of a personnel director by the City Manager, for the classification of positions according to duties, for competitive tests from which eligible lists may be made, for a system of service records, and for other conventional devices, for the management of employees of the government unit. There are strict prohibitions against political contributions and political activity on the part of employees is forbidden, but, as a matter of fact, the appointing officers are permitted to select any one from the eligible lists. The City Manager, H. F. McElroy, however had apparently yielded to the importunities of local politicians and appointed a Personnel Director who had no sympathy with the merit system and apparently no knowledge of civil service methods. The result was, according to the Kansas City Civil Service Institute, that no duties classification had been prepared, and no examination for any position had been given. All appointments were made without examination. No eligible lists were created. All appointments were, therefore, temporary. No transfer rules were prepared. No tests for laborers were prescribed. No efficiency or seniority records were devised. No rules for promotion were made. In short, there seemed to be no evidence of the existence of a civil service section in the Charter, so far as administrative operations were concerned, excepting for the checking of payrolls and the filing of an application blank on the part of new appointees.

During the past few years, and markedly during 1927, the professional service was attracting less and less of the high-grade men to the public service. Particularly is this true of engineers, doctors and nurses. New York City was not able to supply the departments with engineers and the competition in this service was practically *nil.* The same thing was true of Chicago, and Philadelphia had been having trouble for some years with recruiting men of the proper calibre for these services.

In the Federal service the principles of civil service were extended to the Prohibition Enforcement service. (See PROHIBITION.) Congress applied the competitive system to all positions with the sole exception of the Commissioner. It did not blanket in the existing force, but vacated all of the 2500 positions and required that the occupants should only be retained if reached for appointment upon open competition on the same basis with all other persons. This was the most drastic application ever made of the competitive principle and was significant since friends and critics alike of prohibition and of the merit system halted the filibuster in the closing days of Congress long enough to classify the new Prohibition Bureau. The estimate of $200,000, however, for the conduct of the examinations failed of passage along with important legislation affecting seats in the Senate, pension appropriations, compensation for injuries and public buildings.

All parties had reached the conclusion that conditions in the prohibition force under the wide-open spoils system prevailing had become intolerable, and were a reflection not alone upon prohibition enforcement, but upon Congress and the country. In an effort to improve that situation Congress placed the responsibility for testing the personnel upon the Civil Service Commission. It is to be recorded, however, that while the placing of the Prohibition forces under civil service was a notable compliment to the principles of the merit system, considerable doubt was being expressed by its friends as to whether even that system could withstand the corrupting influences surrounding and supporting the illicit liquor traffic. The last step in the examinations for the administrative positions was the character investigation. Twenty-two trained men of the Commission's force were engaged in it. Finger prints of applicants were made at the time of the oral examination.

Each year, Congress places the personnel of new offices or groups of positions within the provisions of the civil service law. Among the new or expanded activities thus placed were the Aëronautical Bureaus of the War Department and the Navy Department; the new Bureau of Civil Aviation in the Department of Commerce; the Board of Mediation, which absorbed the United States Railroad Labor Board; the division of Coöperative Marketing, Department of Agriculture; the enlarged public buildings programme; military post construction under the War Department; the new Bureau of Customs; the Federal Industrial Institution for Women under the supervision of the Department of Justice; probation officers of the United States courts; the new Radio Commission; the field force of the Employees' Compensation Commission due to the Seamen's and Longshoremen's Act; and the Foreign Commerce Service of the Bureau of Foreign and Domestic Commerce.

The whole number examined during the year ending June 30, 1927, for appointment in the federal executive civil service was 559,138. Of this number 422,998 were classified, leaving 136,140 not subject to examination under the civil service rules. in addition, examinations were held for 15,650 Presidential postmasters; for unskilled laborers; firemen and policemen of the District of Columbia, and some other classes of positions outside the classified service.

Congress had to its credit the enactment of the so-called Hoch law, which standardized and stabilized the foreign commerce service in the Bureau of Foreign and Domestic Commerce. This law had the strong support of the Administration, emanating from Secretary Hoover's office. It provides that the Secretary of Commerce shall appoint officers of the foreign service after competitive examinations, to be held by the Civil Service Commission in coöperation with the Department of Commerce. This had been the procedure for a number of years, merely, however by working agreement between the Commission and the Department. A new Secretary of Commerce could have overthrown it at any time.

So far as the classification work in the Federal service goes, there was little to report. The bill intended to place the functions of the Classification Board in the Commission failed of passage, and that Board was making very slow progress. It had done some things with respect to a classification of the field service which constituted a real step in advance, but they must run the gauntlet of Congress again in order to make the classification effective.

Are public personnel records confidential, was the question involved in a suit brought by Ellery C. Stowell, president of the Better Government League against the Federal Civil Service Commission. Mr. Stowell requested from the commission a list of the temporary employees in the Federal Department Service. The Commission denied that it was one of its duties to keep such a list and that the petitioner did not show a sufficient legal or legitimate interest in the premises to entitle him to maintain the proceeding; and that to furnish him such a list would interfere with other of their employees who were daily posting and making changes in the records and that the list contained the records of temporary confidential agents and investigators and that it would be incompatible with the public interests to allow an indiscriminate inspection of these records by private individuals. The Court refused the petition and sustained the Commission.

CIVIL SERVICE REFORM LEAGUE, NATIONAL. An organization founded in 1881 for the purpose of putting to an end the so-called spoils system of making appointments to public office. It has sought to accomplish this end by promoting administrative efficiency through the application of the merit system to the appointment, promotion and tenure of government officials. The League is made up of local associations and of individual members not in local groups.

During 1927 the League continued its programme of sponsoring legislation to empower the President to place in the classified civil service all Federal positions exempt by statute. It made an investigation of the need for the extension of the Civil Service Act to the employees of the District of Columbia and appointed a committee to study the problem involved in a reorganization of the departments of the Federal government. The League was successful in arousing public opinion to an extent which induced Congress to enact a law placing prohibition agents under civil service regulation and also a law prohibiting the sale of Federal offices. Through its Field Division the League endeavors to secure the adoption of civil service laws in various states and cities. Reports of its investigations are issued from time to time. *Good Government* is the official organ of the League. The officers in 1927 were: President, George McAneny; treasurer, A. S. Frissell; secretary, Harry W. Marsh. Headquarters are at 8 West 40th Street, New York.

CIVITAN CLUBS. An organization composed of selected professional and business men, throughout the United States, who have dedicated themselves to unselfish service to their city, county, state or nation. The first Civitan Club was founded at Brimingham, Ala., in 1917. Civitan, a word coined by one of its founders, and meaning "the citizen," has as its motto "Builders of Good Citizenship." The organization of field work of the club did not begin until 1920, but by 1921, when the first annual convention was held, there were 30 clubs; the membership in 1927 was over 7500, clubs having been organized during the year in New York, Ohio, Michigan, Virginia, Kentucky, North and South Carolina, Tennessee, Alabama, Florida and California. At the seventh annual convention, held in June, 1927, in Nashville, Tenn., the programme of Civitan was stressed and the control of tuberculosis and the curbing of crime were especially emphasized. Several clubs have jointly sponsored the building of tuberculosis hospitals, notably in Knoxville, Tenn., where $150,000 was raised for Beverly Hills, a tuberculosis sanatorium, and the Greer and Greenville Clubs which were also successful in raising $150,000 for a sanatorium at Greenville, S. C. Among the activities of the individual clubs were the sponsoring of good citizen essay contests; care of crippled children, underprivileged children, baby clinics; scout work, boy scout camps; programmes against crime; building of municipal golf courses; pig, corn and cotton clubs; street paving; Americanization work; constructive health programmes; juvenile court work; city beautification; and the raising of scholarship funds. The official publication is *The Civitan*, a monthly, published at Knoxville, Tenn., Neal B. Spahr, Editor. The national officers for 1927 were: Sanford Hymans, San Francisco, president; vice-presidents, James N. MacLean, New York; George W. Simons, Jr., Jacksonville, Fla.: Neal B. Spahr, Knoxville, Tenn., secretary; Claude L. Hagan, Birmingham, Ala., treasurer; Charles F. Lender, Columbus, Ohio, and Arthur Cundy, Saratosa, Fla., field secretaries. The headquarters of the association are at 1001–02 Jackson Bldg., Birmingham, Ala.; secretary's office, 1115–16 General Building, Knoxville, Tenn.

CLAIMS COMMISSIONS. See ARBITRATION, INTERNATIONAL.

CLARK, FRANCIS EDWARD. American Congregational clergyman, founder and president of the United Society of Christian Endeavor, died at Newton, Mass., May 26. He was born of American parentage at Aylmer, Quebec, Sept. 12, 1851, and after graduating from Dartmouth in 1873 studied at Andover Theological Seminary for three years. He became pastor of the Williston Church, Portland, Me., and in February, 1881, founded the Society of Christian Endeavor. He was pastor of the Phillips Church, South Boston, Mass., in 1883, serving until 1887, from which time he devoted himself to Christian Endeavor work as president of the United Society of Christian Endeavor, in which capacity he was engaged until 1925, when he became president emeritus. He traveled around the world five times in the interests of the work, and wrote extensively on religious and other topics. He received the degree of D.D. from Dartmouth in 1889, and that of LL.D from Iowa College in 1902. He had served as union preacher at Cornell and other colleges. His writings include: *Our Vacations* (1874); *Life of William E. Harwood, Portland, Me.* (1877); *The Church and the Young People* (1882); *Our Business Boys* (1883); *Looking Out on Life* (1883); *Danger Signals* (1884); *Young People's Prayer Meetings* (1887); *Ways and Means* (1890); *Christian Endeavor Saints* (1890); *Our Journey Around the World* (1894); *The Everlasting Arms* (1895); *The Great Secret* (1895); *World-Wide Endeavor* (1895); *Old Lanterns for New Paths* (1898); *The Mossback Correspondence* (1898); *Fellow Travelers* (1898); *A New Way Around an Old World* (1900); *Training the Church of the Future* (1902); *Christian Endeavor Manual* (1903); *Christian Endeavor in All Lands* (1906); *The Continent of Opportunity* (1909); (with Mrs. Clark) *The Gospel in Latin Lands* (1909); *Similes and Figures from Alexander Maclaren* (1910); *Old Homes of New Americans* (1912); *The Holy Land of Asia Minor* (1914); *In Christ's Own Country* (1914); (with Sydney A. Clark) *The Charm of Scandinavia* (1914); *Christ and the Young People* (1916); *In the Footsteps of St. Paul* (1917); *Our Italian Fellow Citizens* (1919); *The Gospel of Out-of-Doors* (1920); and *Memories of Many Men in Many Lands* (1923). He edited, with introductory selections: *The Presence of God* (Bishop Jeremy Taylor) (1899); *Living and Loving* (Prof. A. Tholuck) (1899); *The Kingdom Within* (Thomas à Kempis) (1899); and *The Golden Alphabet* (Master John Tauler) (1899).

CLARK, JOHN GOODRICH. American surgeon and professor of gynæcology in the medical school of the University of Pennsylvania, died at Philadelphia, Pa., May 4. He was born in Wayne County, Ind., June 4, 1867, and was educated at Earlham College and Ohio Wesleyan University, later taking the degree of M.D. at the University of Pennsylvania. He did postgraduate work at Johns Hopkins University and at the Universities of Leipzig and Prague, and was appointed associate in gynæology at Johns Hopkins in 1899. In 1899 he was appointed professor of gynæcology at the University of Pennsylvania, serving as gynæcologist-in-chief of the University Hospital. He was a member of the general medical committee of the Council of National Defense in 1917, and in the same year president of the Clinical Congress of Surgeons of North America. He belonged to many medical and other organizations, and frequently contributed to the medical press.

CLARKE, HUGH ARCHIBALD. An American organist and composer, died at Bryn Athyn, near Philadelphia, Pa., December 16. He was born in Toronto, Canada, Aug. 15, 1839. He filled several positions as organist in Philadelphia, the last at the Presbyterian Church (1875–97), and was conductor of the Abt Male Chorus. From 1875–1925 he was professor of music at the University of Pennsylvania, retiring on account of impaired eyesight. He wrote an oratorio, *Jerusalem* (1891), incidental music to Aristophanes' *The Acharnians* and Euripides' *Iphigenia in Tauris*, piano pieces and songs. Besides, he was the author of a treatise on harmony and of one on counterpoint, *Music and the Comrade Arts* (1900) and *Highways and Byways of Music* (1901).

CLARK UNIVERSITY. A non-sectarian university, comprising a college for men and a coeducational graduate division of arts and sciences, at Worcester, Mass.; founded in 1887. The registration for the autumn of 1927 was 529, including 259 undergraduates, 71 graduate students, 55 special students and 152 extension students. The enrollment for the summer session was 219. There were 40 members in the faculty. During the year Dwight E. Lee was appointed assistant professor in history and international relations to fill a vacant chair. The productive funds amounted to approximately $5,000,000. The library contained 105,000 volumes. President of the University, Wallace W. Atwood, Ph.D.

CLASSICAL ANTIQUITIES. See ARCHÆOLOGY.

CLASSICAL PHILOLOGY. See PHILOLOGY, CLASSICAL.

CLEMENT, PERCIVAL WOOD. Former Governor of Vermont, died in Philadelphia, Pa., January 9. He was born at Rutland, Vt., July 7, 1846, and, after studying at Trinity College, Hartford, Conn., entered the marble business at Rutland. In 1876 he engaged in banking and from 1882 to 1902 he was president of the Rutland Railroad Company. He was president of the Bristol Railroad Company, and director in the Clement National Bank and the State Trust Company, and was owner of the Rutland *Herald*. He served as Mayor of Rutland, 1897–99, and 1911–12. He was a member of the Vermont House of Representatives in 1892 and of the Vermont Senate in 1900–02 and 1911–12. He was a Governor of Vermont in 1919 and 1920. His political career was marked by opposition to the prohibition movement in Vermont.

CLIMATE. See METEOROLOGY.

CLUBS, BOYS' AND GIRLS'. See AGRICULTURAL EXTENSION.

COAL. The total production of bituminous coal in the United States during the calendar year 1927 was estimated by the U. S. Bureau of Mines at 519,762,000 net tons. In comparing the estimate for the year 1927 with the figures for earlier years given below, it should be borne in mind that the preliminary estimate was subject to slight revision.

ESTIMATED UNITED STATES PRODUCTION OF BITUMINOUS COAL
[*Net tons* [a]]

Period	*Production*	*Average per working day*
Calendar year:		
1927 [b]	519,762,000	1,690,000
1926	573,367,000	1,864,000
1925	520,058,000	1,692,000
1924	483,687,000	1,578,000
1923	564,565,000	1,845,000
1922	422,268,000	1,879,000

[a] Figures for calendar years 1922–1926 are final figures as reported by the operators. Those for 1927 are preliminary estimates.
[b] Subject to revision.

The estimated total stock of bituminous coal in the hands of commercial consumers on Jan. 1, 1927, was 55,000,000 tons. By April 1, this had increased to 75,000,000 tons and at the end of the year it was estimated at 55,500,000 tons, the decrease during the year being gradual. With the decrease in production there was a total withdrawal from storage between October 1 and the end of the year of 6,400,000 tons. Naturally in 1927 the leading feature was the bituminous coal strike which is comprehensively discussed under STRIKES AND LOCKOUTS; LABOR; and TRADES-UNIONS (qq.v.). This began with the expiration of the Jacksonville wage agreement on March 31, when the consumers had some 75,000,000 tons in storage, a stock which had been built up during the last part of 1926 and the first quarter of 1927 when production was heavy, averaging 13,181,000 tons weekly as against a consumption estimated at 11,430,000 tons. Production then dropped to a weekly average of slightly over 8,000,000 tons, though increasing in the summer and running over 10,000,000 tons in October. The average price for January was $2.84 and for July $1.87 and the average for December was $1.90.

In the production of bituminous coal, West Virginia, Pennsylvania and Kentucky led during the year though when mining was resumed in Illinois the output from Kentucky dropped, but the year's production was estimated to show an increase of about 7,000,000 tons over 1926 and prices were satisfactory. In Colorado the coal output showed a decrease of nearly 2,000,000 tons due to a strike called by the I. W. W. who insisted on the Jacksonville scale. The operators had made a voluntary increase of wages but this did not prevent the strike which had the usual accompaniments of riots and picketing.

The exports of bituminous coal from the United States during 1927 totaled 16,081,914 tons, valued at $71,328,924, as compared with 31,492,801 tons, valued at $155,817,572 in 1926. These figures do not include fuel or bunker coal laden on vessels engaged in foreign trade, which in 1927 totaled 4,076,141 tons, valued at $22,977,203 as against 6,906,791 tons valued at $38,025,411 in 1926. Canada as stated below was the leading customer of the U. S. taking 13,030,622 tons valued at $55,620.645 in 1927 as compared with 12,172,779 tons valued at $52,202,634 in 1926. These figures indicate the restoration of normal conditions in Europe, where in 1926 the exports to France were 485,844 tons, to Italy 1,542,015 and to other European countries 12,083,965 tons in 1926 as compared with 106,823 tons to France in 1927, 321,120 tons to Italy and 278,962 to other European countries.

The imports of coal and other related fuels into the United States in 1927 amounted in value to $5,028,161, as compared with $12,272,519 in 1926. The leading fuel import in 1927 was bituminous coal of which 541,295 tons valued at $2,446,564 entered the United States. Of this amount Canada supplied 492,003 tons, valued at $2,187,571.

United States Production of Anthracite Coal. Total anthracite production in 1927, based upon official figures to the middle of December and estimated tonnages for the remainder of the year, was approximately 72,000.000 gross tons against 75,390,582 tons in 1926. According to the Anthracite Bureau of Information total commercial production—that is, total production less the coal consumed at the mines for power—was approximately 66,000,000 gross tons, compared with 69.648,420 gross tons in the previous year. Total shipments to markets outside the region for 1927 aggregated about 63,500,000 or 64,000,000 gross tons compared with 67,248,946 gross tons in 1926. Shipment figures for the decade ended with 1927 are:

SHIPMENTS OF ANTHRACITE FOR TEN YEARS, 1918–1927

Year	*Gross tons*
1918	76,307,687 [a]
1919	67,599,720
1920	68,185,705
1921	69,816,877
1922	40,863,359 [b]
1923	73,146,890
1924	68,970,981
1925	48,007,475 [b]
1926	67,248,946
1927	63,500,000 [c]

[a] War year, with exceptionally large washery and dredge shipments.
[b] Strike years.
[c] Estimated.

The exports of anthracite from the United States in 1927 totaled 2,969,203 tons valued at $32,927,796, as against 3,597,931 tons valued at $41,085,946 in 1926.

For the ten years preceding 1927, including the two abnormal war years 1917 and 1918, and the subnormal strike years of 1922 and 1925, average anthracite shipments were 65,671,043 tons. Shipments for 1927 were therefore about 3.5 per cent below the ten-year average and about 5.5 per cent below the 1926 record. In explanation of this reduction in shipments for 1927, weather conditions were the most important factors. The winter of 1926–1927 was very mild, especially after Jan. 1, 1927, and the amount of coal actually burned during the first four months of the year was below normal. This in turn unfavorably affected the usual early spring demand for refilling bins. There was less demand than usual, during the summer, for the coming winter's supply, and all these conditions were followed by a very mild and late autumn.

An outstanding feature of the year within the anthracite region itself was the rise of a spirit of coöperation including all those directly interested in the welfare of anthracite. Producers, mine employees and the general public of the coal region, especially the business interests, united in a movement of good will and common action for the common good, since the conviction had become not only prevalent but generally expressed, that the prosperity of everybody in the region depended upon the prosperity of the anthracite industry.

Basic facts upon which the activities of the business men in the anthracite region were built during the year were pretty thoroughly discussed within the coal fields. Briefly, according to the Anthracite Bureau of Information they were:

> Out of the $475,000,000 which is the approximate value of the annual production of anthracite, more than $300,000,000 comes back to the region in the form of wages, while about $100,000,000 more comes back in the shape of taxes, cost of supplies, and incidental operating expenses. The people of the region want to keep that annual income of $400,000,000. They frankly recognize that the old political argument of an "anthracite monopoly" is out of date along with the belief that nothing could ever put hard coal out of the running. The clear-thinking people in the anthracite counties—and this includes mine workers just as well as coal producers, merchants, and professional men—realize that to-day there can be no such thing as a monopoly in fuel, and that there are hard competitive conditions surrounding anthracite. But they also realize, and their programmes are built upon this, that as a household fuel anthracite is superior to any readily available competitor. They propose to restate to all consumers the advantages of anthracite, and to assure the public that the best fuel in the United States, scientifically mined and carefully prepared, is to be available in continuous supply.

Within the coal region, as elsewhere, there is no tendency to blink the fact that the trade, in 1927, showed a reduction from the previous year, but it was stated that the industry as a whole was efficient and alert. Its mines were never in better mechanical condition than at the close of 1927. It was ready and determined to hold and increase its trade, and to turn out a quality product that would be the best serviced fuel obtainable. The people of the coal region guaranteed sympathy and coöperation in this policy.

In 1927 there were important developments in the local taxation situation. It was shown that, compared with 1913, the labor cost per ton of hard coal in 1927 would indicate an increase of perhaps 200 per cent. In the same period anthracite taxes, excluding Federal taxes, increased from approximately $5,660,000 to $28,000,000 a year, about $7,000,000 of the latter figure being due to the State tonnage tax. Besides the burden of this direct and discriminatory State tax, local taxation for county, school and municipal purposes also showed tremendous advances. There were many properties within the region which showed, within twenty years, more than 700 per cent increase in local taxes. In view of this, a decision by President Judge Fuller, of Luzerne County, in a tax appeal case brought by the Lehigh & Wilkes-Barre Coal Company, was an outstanding event of the year. Most of the local tax increases had been brought about by writing up anthracite valuations in every triennial assessment, and then gradually increasing the mill rates on the increased valuations. The coal lands in Luzerne County, for example, were assessed for taxation purposes in 1913 at a little more than $170,000,000. In 1925 they were returned at $226,325,865, an increase in valuation alone of about 25 per cent in twelve years. It was from the 1925 assessment, so far as it affected its own properties, that the Lehigh & Wilkes-Barre Coal Company appealed, and Judge Fuller's decision in the initial case was handed down last summer.

This case involved lands aggregating about 580 acres in the town of Ashley, on which a taxable valuation of $4,448,618 was returned. This was supposed to be 60 per cent of actual market value, that being the ratio presumably used for taxation throughout the county. The company contended that the valuations were excessive, that as returned they were greater than the actual amounts the lands would bring at public sale, and that they had been reached by the erroneous method of estimating the amount of coal in place and applying an assumed value per ton in the ground. Briefly, this meant that in the assessment valuation was reduced to a quantity basis, instead of being determined by applying the test of actual sale value, as the law directs. The decision, based on the testimony of distinguished engineers and the figures realized in actual sales, placed the full value of the disputed properties at $2,410,405 which, on the basis of 60 per cent for taxation purposes, would make the taxable valuation $1,446,243, or about one-third of the figure originally returned.

Additional appeals of the Lehigh & Wilkes-Barre Coal Company were pending at the end of the year, and other holders of Luzerne coal properties are in a position to appeal. Indeed, late in December the Lehigh Valley Coal Company and Coxe Bros. & Company, Inc., filed important appeals covering coal holdings in the city of Hazleton. Under the 1925 valuation as returned, coal properties in Ashley were responsible for 68 per cent of the taxes levied. Under the decision of Judge Fuller, even at its face total, coal properties would be responsible for only 52 per cent of the total taxes. The importance of this case, not only in the matter of dollars involved but in its practical political and social implications, is very great. The Supreme Court was still to be heard from, of course, but the Fuller decision seems to be in line with every pronouncement of that court in such cases. The Luzerne County anthracite tax appeals, following, as they do, the important Schuylkill County coal land appeals of three years before, appeared to be writing a new chapter in the tax history of the region and to be pointing the way to relief from excessive local tax burdens.

The importance of the coal mining situation in the United States was recognized by President Coolidge in his message to Congress on Dec. 6, 1927. The President recommended that legislation be enacted authorizing the Federal control of fuel distribution as well as a Federal board of mediation and conciliation in case of actual or threatened interruption to coal mining. The recommendation in full was as follows: "Legislation authorizing a system of fuel administration and the appointment by the President of a board of mediation and conciliation in case of actual or threatened interruption of production is needed. The miners themselves are now seeking information and action from the government, which could readily be secured through such a board. It is believed that a thorough investigation and reconsideration of this proposed policy by the Congress will demonstrate that this recommendation is sound and should be adopted."

Canadian Coal Industry. The total output of coal from some 500 Canadian mines in 1927 was estimated at 17,411,505 net tons, valued at $61,809,672, or an average value of $3.60 per ton. This production, which was announced by the Dominion Bureau of Statistics in a preliminary statement subject to revision, may be compared with 16,478,131 tons mined in 1926, with a value of $59,875,094, or an average value of $3.63 per ton. In other words, more coal was mined in Canada in 1927 than in any other year previously recorded. The imports of coal amounted to 19,253,088 tons, including 18,314,248 tons from the United States; 928,544 tons from Great Britain; 4818 tons from Germany; 5155 tons from the Netherlands; and 323 tons from Japan. The kinds of coal imported were as follows: anthracite in egg and nut sizes, 3,719,326 tons; anthracite dust, 344,293 tons; bituminous coal, 15,178,640 tons; and lignite, 10,829 tons. The exports of Canadian coal in 1927 were 1,113,330 tons as compared with 1,028,200 tons in 1926. It would appear from these statistics that Canada's coal consumption increased during 1927 by nearly two million tons, the gain being mainly for industrial purposes.

WORLD PRODUCTION OF COAL OF ALL GRADES, 1912–1925 [a]
[*U. S. Bureau of Mines*]

Year	*Production in part estimated (metric tons)*	*Percentage produced by United States*
1912	1,249,000,000	38.8
1913	1,342,000,000	38.6
1914	1,207,000,000	38.7
1915	1,193,000,000	40.5
1916	1,291,000,000	41.5
1917	1,356,000,000	43.6
1918	1,333,000,000	46.3
1919	1,173,000,000	42.8
1920	1,320,000,000	45.3
1921	1,135,000,000	40.5
1922	1,226,000,000	35.3
1923	1,360,000,000	43 9
1924	1,357,000,000	38.2
1925	1,352,000,000	39.0

[a] Includes lignite and subbituminous coal as reported, without attempting to reduce to equivalent tonnage of bituminous coal.

World Production of Coal. The world's production of coal and lignite in 1926 was approximately 1,355,000,000 metric tons, practically the same as in 1924 and 1925. The decline in the output of the United Kingdom caused by the great strike of 1926 was largely offset by increases in the other principal producing countries, particularly in Germany and the United States. The output of Great Britain dropped from 247,000,000 to about 127,000,000 tons, while in Germany the output of bituminous coal rose from 132,729,000 to 145,362,000 tons.

The accompanying table presents the information for 1926 and was prepared by the U. S. Bureau of Mines. The figures were taken from such official sources as were available, supplemented by trade information, and were subject to revision, being a preliminary estimate. (See page 209.)

COAL PRODUCED IN THE PRINCIPAL COUNTRIES OF THE WORLD IN THE CALENDAR YEARS 1924, 1925, AND 1926 [a]

[*In metric tons of 2,204.6 lbs.*]

Country	*1924*	*1925*	*1926*
North America:			
Canada—			
Coal	9,138,841	13,134,968	11,675,633
Lignite	8,233,459		3,254,267
United States—			
Anthracite	79,765,491	56,079,281	77,000,000
Bituminous and lignite	438,790,754	471,781,446	524,613,000
Other countries	([b])	([b])	([b])
South America	2,098,000	2,013,000	([b])
Europe:			
Belgium	23,361,910	23,097,040	25,319,570
Czechoslovakia—			
Coal	15,178,942	12,754,456	14,408,172
Lignite	20,459,690	18,789,098	18,613,900
France—			
Coal	44,011,240	47,047,630	52,477,972
Lignite	944,180	1,007,270	
Germany—			
Coal	118,768,748	132,729,095	145,362,000
Lignite	124,637,201	139,804,258	139,877,407
Saar [c]	14,032,120	12,989,850	13,581,000 [d]
Hungary—			
Coal	744,394	805,019	826,906
Lignite	6,333,286	5,520,760	5,822,299
Netherlands—			
Coal	6,180,182	7,116,970	8,651,000
Lignite	191,202	207,623	
Poland—			
Coal	32,224,680	29,080,499	35,356,134
Lignite	88,038	65,675	73,000 [d]
Russia	13,918,000 [e]	14,334,970 [e]	25,300,000 [e f]
Spain—			
Coal	6,127,586	6,117,342	6,310,000 [d]
Lignite	411,773	402,690	354,000 [d]
United Kingdom: Great Britain	271,405,414	247,079,210	127,589,000
Ireland	([b])	([b])	([b])
Other countries	([b])	([b])	([b])
Asia:			
China	20,969,000	13,800,000	([b])
India, British	21,514,131	21,239,892	21,000,000 [d]
Japan (including Taiwan and Karafuto)—			
Coal	31,816,662	([b])	([b])
Lignite	176,764		
Other countries	([b])	([b])	([b])
Africa:			
Rhodesia, Southern	591,526	689,201	874,140
Union of South Africa	11,819,988	12,321,728	12,850,000
Other countries	([b])	([b])	([b])
Oceania:			
Australia—			
New South Wales	11,804,688	11,579,108	10,700,000
Other States	2,303,156	3,156,914	([b])
New Zealand—			
Coal	1,102,418	1,044,726	([b])
Lignite	1,014,224	1,070,269	([b])
Total	1,357,000,000	1,361,000,000	1,355,000,000

[a] Prepared by L. M. Jones, Bureau of Mines.

[b] Estimate included in total.

[c] Territory under French control.

[d] Estimated from monthly figures as follows: The Saar, Poland (lignite), Spain, 11 months; India, 10 months.

[e] Data for year ended September 30.

[f] Russia in Asia included under Russia in Europe.

COATES, FLORENCE EARLE. American author and poet, died at Philadelphia, Pa., April 6. She was born at Philadelphia, Pa. in 1850, the daughter of George H. and Ellen Frances Earle, and was educated at private schools in New England and in Europe, and married Edward Hornor Coates, Jan. 7, 1879. She was the author of *Poems* (1898); *Mine and Thine* (1904); *Lyrics of Life* (1909); *Ode on the Coronation of King George V* (1911); *The Unconquered Air and Other Poems* (1912); *Poems* (2 vols.) (1916); and *Pro Patria* (1917). She was a contributor to the leading monthly magazines in the United States, and was unanimously elected poet laureate of Pennsylvania by the State Federation of Women's Clubs. She was president of the Browning Society of Philadelphia, 1895–1903 and 1907–08. She was a founder of the Contemporary Club of Philadelphia, and was connected with many patriotic and other organizations in the United States and Europe.

COCHIN-CHINA, kō′chĭn-chī′na. The southernmost colony in French Indo-China (q.v.). Area, estimated at 26,476 square miles; population, estimated in 1924 at 4,001,093, consisting chiefly of Annamites, Cambodians, Moïs, Chams, and Chinese, with a few Indians, Malays, Tagals, and foreigners. In 1924 there were 11,439 French and 654 European foreigners. Saigon, the capital, had a population in 1924 of 108,566, of whom 8444 were Europeans, exclusive of 3066 troops. Cholon had a population of 233,270, of whom 122,185 were Chinese. There are about 1134 schools with 2554 teachers and 90,070 pupils.

VALUES OF FOREIGN COINS

Country	*Legal standard*	*Monetary unit*		*Value in U. S. money*	*Remarks*
Argentine Republic	Gold	Peso		$0.9648	Currency: Paper normally convertible at 44 per cent of face value.
Austria	Gold	Schilling		.1407	
Belgium	Gold	Belga		.1390	1 belga equals 5 paper francs.
Bolivia	Gold	Boliviano		.3893	12½ bolivianos equal 1 pound sterling.
Brazil	Gold	Milreis		.5462	Currency: Government paper a part of which is legally convertible at 16 pence (= $0.3244) per milreis; now inconvertible.
British Colonies in Australasia and Africa	Gold	Pound sterling		4.8665	
British Honduras	Gold	Dollar		1.0000	
Bulgaria	Gold	Lev		.1930	
Canada	Gold	Dollar		1.0000	
Chile	Gold	Peso		.1217	
China	Silver	Tael	Amoy	.6850	The tael is a unit of weight; not a coin. The customs unit is the Haikwan tael. The value of other taels are based on their relation to the value of the Haikwan tael. The Yuan silver dollar of 100 cents is the monetary unit of the Chinese Republic, it is equivalent to .637— of the Haikwan tael.
			Canton	.6829	
			Chefoo	.6551	
			Chin Kiang	.6691	
			Fuchau	.6336	
			Haikwan	.6970	
			Hankow	.6409	
			Kiaochow	.6638	
			Nanking	.6778	
			Niuchwang	.6424	
			Ningpo	.6586	
			Peking	.6678	
			Shanghai	.6257	
			Swatow	.6327	
			Takau	.6893	
			Tientsin	.6638	
		Dollar	Yuan	.4439	
			Hongkong British	.4505	
			Mexican	.4538	Mexican silver pesos issued under Mexican decree of Nov. 13, 1918, are of silver content approximately 41 per cent less than the dollar here quoted; and those issued under decree of Oct. 27, 1919, contain about 51 per cent less silver.
Colombia	Gold	Peso		.9733	Currency: Government paper and silver.
Costa Rica	Gold	Colon		.4653	Law establishing conversion office fixes ratio 4 colons (nongold) = $1 U. S.
Cuba	Gold	Peso		1.0000	
Denmark	Gold	Krone		.2680	
Dominican Republic	Gold	Dollar		1.0000	U. S. money is chief circulating medium.
Ecuador	Gold	Sucre		.2000	By law effective Mar. 19, 1927.
Egypt	Gold	Pound (100 piasters)		4.9431	The actual standard is the British pound sterling, which is legal tender for 97½ piasters.
Esthonia	Gold	Kroon		.2680	
Finland	Gold	Markka		.0252	
France	Gold and silver	Franc		.1930	
Germany	Gold	Reichsmark		.2382	
Great Britain	Gold	Pound sterling		4.8665	
Greece	Gold and silver	Drachma		.1930	
Guatemala	Gold	Quetzal		1.0000	
Haiti	Gold	Gourde		.2000	Currency: National bank notes redeemable on demand in American dollars.
Honduras	Gold	Lempira		.5000	Legally established, not yet operative.
Hungary	Gold	Pengö		.1749	
India (British)	Gold	Rupee		.3650	By law effective Apr. 1, 1927.
Indo-China	Silver	Piaster		.4518	
Italy	Gold	Lira		.0526	By decree effective Dec. 22, 1927.
Japan	Gold	Yen		.4985	
Latvia	Gold	Lat		.1930	
Liberia	Gold	Dollar		1.0000	Currency: Depreciated silver token coins.
Lithuania	Gold	Litas		.1000	Currency: Notes of the Bank of Lithuania.
Mexico	Gold	Peso		.4985	
Netherlands	Gold	Guilder (florin)		.4020	
Newfoundland	Gold	Dollar		1.0000	
Nicaragua	Gold	Cordoba		1.0000	
Norway	Gold	Krone		.2680	
Panama	Gold	Balboa		1.0000	
Paraguay	Gold	Peso (Argentine)		.9648	Currency: Depreciated Paraguayan paper currency.
Persia	Silver	Kran		.0769	Currency: Silver circulating above its metallic value. Gold coin is a commodity only, normally worth double the silver of same denomination.
Peru	Gold	Libra		4.8665	
Philippine Islands	Gold	Peso		.5000	
Poland	Gold	Zloty		.1122	By decree effective Oct. 13, 1927.
Portugal	Gold	Escudo		1.0805	Currency: Inconvertible paper.
Rumania	Gold	Leu		.1930	
Russia	Gold	Ruble		.5146	Pre-war unit. (One Soviet chervonetz = 10 gold rubles.)
Salvador	Gold	Colon		.5000	
Siam	Gold	Tical		.3709	
Spain	Gold and silver	Peseta		.1930	Valuation is for gold peseta; currency is notes of the Bank of Spain.
Straits Settlements	Gold	Dollar		.5678	
Sweden	Gold	Krona		.2680	
Switzerland	Gold	Franc		.1930	
Turkey	Gold	Piaster		.0440	(100 piasters equal to the Turkish £.)
Uruguay	Gold	Peso		1.0342	Currency: Inconvertible paper.
Venezuela	Gold	Bolivar		.1930	
Yugoslavia	Gold	Dinar		.1930	

The principal product and the largest item of export is rice, over 80 per cent of the cultivable land being given over to its production. The rice crop for 1925 was estimated at 2,215,263 metric tons, of which, 1,095,441 tons were available for export. Other crops are maize, beans, rubber, sugarcane, ground-nuts, tobacco, coffee, fruits, etc. Other sources of wealth are livestock and fisheries, the annual output of the latter being placed at 2,800,000 francs. There are 11 rice mills in Saigon and Cholon which have a daily output of 300 tons of rice. There are also in these cities two sawmills, two soap factories and a varnish factory. Commerce is largely in the hands of the Europeans and the Chinese, although the Annamites are traders on a small scale. During 1924, 749 steamers of 1,599,368 tons entered the port of Saigon and 752 vessels of 1,608,254 tons cleared. The total exports in 1924 amounted to 1,341.336,000 francs and the total imports, 818,656,983 francs. The budget for the year, 1925, balanced at 14,079,850 piastres. Cochin-China is ruled directly by a governor and council of 24 members. It is represented in the French parliament by one deputy.

CODIFICATION, LAW. See INTERNATIONAL LAW.

CODLING MOTH. See ENTOMOLOGY, ECONOMIC.

COFFEE. See BRAZIL.

COGHLAN, SIR CHARLES PATRICK JOHN. First premier of Southern Rhodesia, died at Salisbury, Southern Rhodesia, August 28. He was born in Cape Colony, June 24, 1863, and was educated at St. Aidan's College, Grahamstown, and the South African College, Cape Town. He did not finish his university course on account of his father's death, but went to Kimberley and was employed by his brother, to whom he was articled. He was taken into partnership in 1886, and practiced as a solicitor in Kimberley until he moved to Bulawayo. He was active in local politics, and, after a popular referendum had decided against joining the South African Union, Coghlan became premier of Southern Rhodesia, having been a prime mover in the popular demand for a constitution from the home government. He was knighted in 1910 and created K. C. M. G. in 1925. He was an eloquent speaker and a skillful political leader.

COINS, VALUES OF FOREIGN. The legal estimates of the values of foreign coins on Jan. 1, 1927, as issued by the Secretary of the Treasury are given in the table on page 210.

COKE. Statistics of the United States coke industry in 1926, based on complete returns received by the U. S. Bureau of Mines from producers, are given in the tables (pages 212 and 213). The figures relate exclusively to beehive and by-product coke and do not include the output of petroleum coke, which amounted in 1926 to 995,000 tons, nor of retort or gas-house coke, the sales of which amount to between one and two million tons a year. The figures include installations of by-product coke ovens operated in conjunction with city gas supply, and in this respect differ from the compilations of the U. S. Census Bureau which treat such installations as a part of the city gas industry.

The production of by-product coke in 1926 set a new record and the production of all coke—beehive and by-product—nearly equalled the high marks of 1918 and 1923. The output of by-product coke was 44,376,586 net tons, as against 39,912,159 tons in 1925, an increase of 12 per cent. The production of beehive coke was 12,488,951 tons, or 1 per cent greater than that of 1925. The production of all coke showed an increase of 9 3 per cent, and amounted to 56,865,537 tons. The year 1926 was further notable for the high percentage of the total output coming from by-product ovens. In spite of the heavy demand for coke, the proportion contributed by the beehive ovens was the lowest on record—only 20.5 per cent of the total. This was a remarkable shift since 1918, when 54 per cent of the supply came from beehive ovens, or even since 1923, when they furnished 34.0 per cent. In a year of active demand the beehive ovens supplied even less than they did in 1921, a year of acute depression.

With the addition of more than 650 new ovens during 1926, the potential coking capacity of by-product plants at the close of the year, at 100 per cent operation and all conditions favorable, amounted to about 50,500,000 net tons. If all of the ovens then under construction were put into operation during 1927, the coke plants would be capable of turning out, at 100 per cent operation, more than 56,000,000 tons. At this rate the plants in existence have a coal-carbonizing capacity of 72,000,000 tons of bituminous coal, which will be later increased to 81,000,000 tons through the addition of new ovens.

The preliminary totals for the calendar year 1927 showed a total production in the United States of 43,921,000 tons of by-product coke and 7,004,000 tons of bee-hive coke. In comparison with 1926 this was a decrease of 1 per cent in by-product output and 44 per cent in beehive production.

COLERIDGE, BERNARD JOHN SEYMOUR COLERIDGE, SECOND BARON. Judge of the British High Court of Justice (King's Bench Division), 1907–23, died at Ottery St. Mary, Devonshire, September 4. He was born Aug. 19, 1851, and was educated at Eton and at Trinity College, Oxford. He was made Queen's Counselor in 1892, and became a bencher of the Middle Temple in 1894. He was justice of the peace and chairman of the Devon Quarter Sessions, and was a member of Parliament for Sheffield (Attercliff), 1885–94. He became a judge of the high court of justice, King's Bench division, in 1907, and was chairman of the coal conciliation board of the Federated Trades, 1912–18. He was elected fellow of the Royal Society of Literature in 1916, and published *The Story of Devonshire House* (1905); and *This for Remembrance* (1925). He retired from the King's Bench Division in 1923 on account of ill health.

COLGATE, AUSTEN. American manufacturer and politician, died at Barnegat Bay, N. J., September 5. He was born in Orange, N. J., Aug. 12, 1863, and was educated at Norwich Academy and Yale College, graduating in 1886. Entering the family business, involving the manufacture of soap and perfumes, he became a director of Colgate & Company in 1896, and later was vice president, a position he held at his death, being in direct charge of production in the Jersey City factory. A member of Troop A of the New York State National Guard, he later became colonel in the New Jersey State Militia, serving on the staff of Governor Fort and of President Wilson when he was Governor of New Jersey. He was many times elected to the New Jersey

BY-PRODUCT AND BEEHIVE COKE PRODUCED IN THE UNITED STATES, 1926

[*Exclusive of screenings and breeze*]

	By-product					Beehive				Total	
State	*Ovens built*	*Ovens building*	*Coal used (net tons)*	*Coke produced (net tons)*	*Value of coke at ovens*	*Ovens built*	*Coal used (net tons)*	*Coke produced (net tons)*	*Value of coke at ovens*	*Coke produced (net tons)*	*Value of coke at ovens*
Alabama	1,276	112	6,799,773	4,779,986	$16,823,492	1,831	(a)	(a)	(a)	(a)	(a)
Colorado	120	...	859,725	592,939	(b)	1,527	807,011	197,179	(b)	790,118	(b)
Georgia	....	...	....	....	....	151	5,125	3,059	$23,034	3,059	$23,034
Illinois	849	...	4,712,342	3,336,962	25,050,474	.....	....	....	....	3,336,962	25,050,474
Indiana	1,394	40	7,994,696	5,990,344	44,143,059	.....	....	....	....	5,990,344	44,143,059
Kentucky	108	...	(a)	(a)	(a)	768	249,952	147,540	600,169	(a)	(a)
Maryland	300	60	1,534,021	1,120,610	(b)	.....	....	....	....	1,120,610	(b)
Massachusetts	466	15	874,053	573,748	(b)	.....	....	....	....	573,748	(b)
Michigan	420	120	2,522,841	1,826,638	12,713,083	.....	....	....	....	1,826,638	12,713,083
Minnesota	220	...	903,041	619,905	6,014,738	.....	....	....	....	619,905	6,014,738
Missouri	64	...	(a)	(a)	(a)	.....	....	....	....	(a)	(a)
New Jersey	207	...	1,260,372	913,250	(b)	.....	....	....	....	913,250	(b)
New Mexico	....	...	....	....	....	584	(a)	(a)	(a)	(a)	(a)
New York	661	117	3,950,026	2,827,805	17,455,226	.....	....	....	....	2,827,805	17,455,226
Ohio	1,689	89	10,962,723	7,547,836	40,344,524	204	125,883	84,970	(b)	7,632,806	(b)
Oklahoma	....	...	....	....	....	300	....	....	....	....	....
Pennsylvania	3,126	425	16,895,070	11,200,624	48,722,935	34,375	16,344,439	10,722,352	47,595,184	21,922,976	96,318,119
Rhode Island	40	...	(a)	(a)	(a)	.....	....	....	....	(a)	(a)
Tennessee	24	...	165,065	118,624	628,482	1,605	215,647	122,410	605,017	241,034	1,233,499
Utah	33	...	326,544	184,756	(b)	819	203,750	121,475	1,033,284	306,231	(b)
Virginia	....	...	....	....	....	2,914	599,948	370,983	1,716,716	370,983	1,716,716
Washington	20	...	67,544	42,584	303,624	332	39,265	24,702	214,429	67,286	518,053
West Virginia	411	...	1,632,790	1,129,862	4,265,884	7,153	957,029	583,599	2,652,219	1,713,461	6,918,103
Wisconsin	288	...	(a)	(a)	(a)	.....	....	....	......	(a)	(a)
Combined States	....	...	2,185,984	1,570,113	11,621,482	.....	176,456	110,682	730,590	6,608,321	29,775,733
Undistributed	....	...	....	....	22,661,530	.....	....	....	1,854,227	....	65,893,565
Total	11,716	978	63,646,610	44,376,586	250,748,533	52,558	19,224,500	12,488,951	57,024,869	56,865,537	307,773,402

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[a] Included under "Combined States."

[b] Included under "Undistributed."

STATISTICAL SUMMARY OF THE COKE INDUSTRY IN 1926

	By-product	*Beehive*	*Total*
Coke produced:			
Quantity .... net tons..	44,376,586	12,488,951	56,865,537
Value	$250,748,533	$57,024,869	$307,773,402
Screenings and breeze produced:			
Quantity .... net tons..	4,183,453	218,342	4,401,795
Value	$9,233,229	$648,193	$9,881,422
Coal charged into ovens:			
Quantity .... net tons..	63,646,610	19,224,500	82,871,110
Value	$247,170,284	$38,541,691	$285,711,975
Average value	$3.88	$2.00	$3.45
Average yield in per cent of coal charged:			
Coke	69.7%	65.0%	68.6%
Breeze (at plants actually recovering)	6.6%	2.8%	6.2%
Ovens:			
In existence January 1	11,290	57,587	68,877
In existence December 31	11,716	52,558	64,274
Dismantled during year	183	5,018	5,201
In course of construction December 31	978	....	978
Coke used by operator in blast furnace or affiliated works:			
Quantity .... net tons..	31,334,305	1,585,039	32,909,344
Value	$160,606,129	$7,148,961	$167,755,090
Disposal of coke:			
Sold for furnace use to affiliated corporations—			
Quantity .... net tons..	2,127,176	4,260,028	6,387,204
Value	$10,955,119	$20,306,453	$31,261,572
Merchant sales of furnace coke—			
Quantity .... net tons..	1,566,980	4,156,032	5,723,012
Value	$9,800,299	$16,384,006	$26,184,305
Sold for foundry use—			
Quantity .... net tons..	2,168,017	1,163,660	3,331,677
Value	$16,836,376	$5,967,936	$22,804,312
Sold for domestic use—			
Quantity .... net tons..	5,056,568	386,045	5,442,613
Value	$37,567,659	$2,677,741	$40,245,400
Sold for industrial and other use—			
Quantity .... net tons..	1,662,837	963,797	2,626,634
Value	$12,285,212	$4,638,542	$16,923,754
Disposal of screenings and breeze:			
Used by operator—			
Quantity .... net tons..	3,085,770	52,314	3,138,084
Value	$5,595,796	$65,034	$5,660,830
Sold—			
Quantity .... net tons..	936,292	43,516	979,808
Value	$3,281,676	$167,089	$3,448,765
By-products produced:			
Gas .... M. cubic feet	706,681,828	....	706,681,828
Tar .... gallons..	529,486,374	....	529,486,374
Ammonium sulphate or equivalent .... pounds..	1,381,952,369	....	1,381,952,369
Crude light oil .... gallons..	164,059,552	....	164,059,552
Value of by-products sold:			
Gas (surplus)	$64,686,800	....	$64,686,800
Tar	$14,103,760	....	$14,103,760
Ammonium sulphate or equivalent	$28,128,203	....	$28,128,203
Crude light oil and derivatives	$27,304,976	....	$27,304,976

Assembly from Essex County, and in 1912–13 he was a State senator. In 1924 he was a candidate for the Republican gubernatorial nomination, but was unsuccessful. He was a trustee of Colgate University, Hamilton, N. Y., which in 1927 conferred on him the degree of LL.D. He was active in many charitable and philanthropic enterprises in Orange, N. J., and was considered a most public-spirited citizen.

COLGATE UNIVERSITY. A non-sectarian institution of higher education at Hamilton, N. Y.; founded in 1819. In the autumn of 1927 there were 973 students enrolled, and there were 74 members on the faculty. The productive funds amounted to approximately $4,097,000, and the income for the year to approximately $396,380. A new dormitory for members of the freshman class was completed in September, 1927, at a cost of $250,000. A department of personnel and a vocational guidance and placement bureau were established. The library contained 109,000 volumes. President, George Barton Cutten, Ph.D., D.D., LL.D.

COLL, Captain François. See Aeronautics.

COLLEGES. See Universities and Colleges.

COLLINGWOOD, Herbert Winslow. American editor and author, died at Woodcliff Lake, N. J., October 21. He was born at Plymouth, Mass., Apr. 21, 1857. He was graduated from Michigan Agricultural College in 1883, and from the University of Wisconsin, with the highest honors in agriculture, in 1912. Michigan Agricultural College conferred on him the degree of LL.D. in 1906. All of Mr. Collingwood's professional career was spent in the editing of agricultural magazines and in writing; he was the editor of *The Southern Live Stock Journal*, 1883–85, of *The Rural New Yorker*, 1885–1900, and editor-in-chief of the latter publication from 1900. His hearing was impaired, and he was greatly interested in measures for the alleviation of the lot of the deaf. Mr. Collingwood wrote: *Andersonville Violets; The Business Hen; Chemicals and Clover; Fertilizer Farming; The Farmer's Garden; The Child; The Story of the Phosphates; The Story of Hope Farm; Hope Farm Notes; Adventures in Silence*, and *Cape Cod Ramblings*.

COLLINS, The Most Rev. Thomas Gibson George. Bishop of Meath and premier bishop of the Church of Ireland, died at Bishopscourt, Navan, County Meath, July 3. He was born at Dublin, Apr. 2, 1873, and was educated at Rathmines School and Trinity College, Dublin. He was ordained to the curacy of Maralin in 1896, and became rector of Rathfriland and

Ballyrony in 1902. He held appointments in various parishes, and in 1919 became vicar of Belfast and dean of St. Anne's Cathedral. In February, 1926, he was elected to the Bishopric of Meath.

COLOM'BIA. A South American Republic in the northwestern part of the continent. Capital, Bogotá.

AREA AND POPULATION. The area of Colombia is given at 440,846 square miles and the population according to the census of Oct. 14, 1918, 5,855,077; estimated in 1925 bv the Colombia *Year Book*, 7,000,000. The total population was distributed as follows: whites 20 per cent; negroes 5 per cent; Indians, 7 per cent; mulattoes, 18 per cent; mestizos, 50 per cent. The capital, Bogotá, had a population in 1918 of 143,994, and estimated in October, 1923, at 166,148. The country is divided into 14 departments, three intendencies, and six commissionerships. Other important towns with their populations in 1918 are: Barranquilla, 64,543, estimated in 1923, 81,330; Medellin, 79,146, estimated in 1923, 86,641; Cartagena, 51,382; estimated in 1923, 68,119; Cali, 45,825, estimated in 1923, 68,777; and Manizale, 43,203, estimated in 1923, 51,838.

PRODUCTION, MINERAL RESOURCES, ETC. The principal occupations of the country are mining and agriculture. The chief agricultural products are coffee, bananas, cacao, and hides. In the plateau region, of which Bogota, the capital, is the centre, the chief agricultural products are wheat and coffee. Only a small area of the soil is cultivated although a large part of it is fertile. Absence of adequate transportation prevents production on a large scale. Other important products besides wheat and coffee are tobacco, vegetables, cotton, vegetable ivory, ivory nuts, dyewoods, corn, bananas, and rubber. During the year 1926 there were 331,301,766 coffee trees in bloom, which yielded a crop estimated at 2,760,848 bags of 60 kilos each. Of this amount, 2,454,251 bags were exported, valued at 92,283,862 pesos. Exports of coffee in 1926 exceeded those of the year 1925 by 505,886 bags. By a decree signed on June 4, 1927, the government created in the Department of Industry a new Bureau of Agriculture and Zoötechnology. This bureau was to be responsible for everything pertaining to the organization, promotion, and protection of agriculture and livestock, agronomic surveys, and the betterment of agricultural production throughout the country in general.

Colombia is rich in minerals. Gold is found in nearly all the departments and other minerals more or less worked are copper, lead, mercury, cinnabar, manganese, emeralds, and platinum. Colombia produces one-half of the world's output of platinum, most of the remainder coming from Russia. The government operates the emerald mines which produce 90 per cent of the world's supply of emeralds. Many large coal deposits are known to exist but are not exploited to any great extent. In July, 1926, the first shipment of crude oil was made from Colombia. In June, 1927, Colombia's contribution to world petroleum supplies was considered a large factor in making estimates of future world production. During the first four months of 1927 exports totaled 3,329,276 barrels, most of which went to the United States, with smaller amounts for Canada, Cuba, and South American countries. Exploration, experimental drilling, and examination were being conducted throughout potential oil areas in Colombia, but most of the activities are in the Caribbean coast region and the Magdalena Valley. A few of the companies engaged represent Colombian interests. The majority, however, were foreign, about seven American and three British firms being listed. An advance estimate for 1927 gave production at 14,500,000 barrels of crude oil. The shortage of labor in Colombia considerably affects petroleum operations, both directly and indirectly, through the resultant shortage of food and other supplies. Its effect on agricultural development is considered partly responsible for the present high cost of living. Some of the conservative papers were advocating the admission of foreign laborers.

COMMERCE. No later statistics for trade were available than those given in the preceding YEAR BOOK, when the total foreign trade of Colombia amounted to 170,193,089 pesos, of which 85,829-707 pesos represented imports and 84,363,382 pesos represented exports.

FINANCE. In accordance with the treaty of 1922 the sum of $25,000,000 had been paid to Colombia by the United States during the last five years, in annual installments of $5,000,000. An official report of the ministry of finance sets forth in the following detail the manner in which this $25,000,000 had been used:

	Pesos
Bank of the Republic	5,000,000
Agricultural Mortgage Bank	1,000,000
Northern Railway, first section	2,840,317
Northern Railway, second section	2,978,012
Pacific Railway	2,156,264
Tolima-Huila-Caqueta Railway	2,371,538
Carare Railway	659,763
Bolivar Central Railway	817,708
Narino Railway	881,993
Caldas Railway	720,000
Medellin-Cauca River Railway	1,200,000
Bolombolo-Canafistula Railway	550,000
Nacederos-Armenia Railway	246,957
Southern Railway-Fusagasuga extension	95,328
Cundinamarca Railway	299,786
Ambalema-Ibague Railway	99,000
Ibague-Armenia Railway	38,255
Santander-Timba Railway	115,520
Aerial cable from Cucuta to Magdalena	716,276
Aërial cable from Manizales to Choco	42,870
Dique Canal	1,080,000
Bocas de Ceniza	1,750,000
Girardot Bridge	185,683
Buenaventura Wharf	569,279
Total	25,359,549

A considerable portion was spent upon railroad construction since the national need of means of communication was most pressing. The first installment of $5,000,000 was used for an end and in a manner which met with unqualified approval on the part of all Colombians—the establishment of the Bank of the Republic. The foundation of such an institution was one of the recommendations of the American commission of financial experts which visited Colombia upon the invitation of the government in 1923. The initial capital of the new institution was provided by the first installment of $5,000,000, and its dramatic arrival by airplane stifled an incipient banking and financial crisis and checked a feeling of apprehension which had begun to pervade the business community as a result of the strained financial conditions. The establishment of this institution in July, 1923, marked the post-war resumption of the gold standard by Colombia.

The revenues and expenditures for 1926 balanced at 40,829,248 pesos. The custom house receipts for the same year were 30,469,130 pesos and thus represented about 54 per cent of the total government receipts. The balance of the national debt on June 30, 1927, was 21,388,502 pesos, consisting of 12,466,653 external debt and 8,921,849 internal debt. In October, 1927, the Pan American *Bulletin* reported that the Colombian government had decided to accept the tender of Hallgarten & Co. and of Kissel, Kinnicutt & Co. of New York for a loan of $60,000,000. The proceeds of this loan were to be used exclusively for completing the Pacific Railroad, the Central Northern Railroad, the continuation of the branch line of the Western Railroad, improvements on the Magdalena River and Bocas de Ceniza, and port improvements.

COMMUNICATIONS. The total length of the railways in Colombia was about 2000 kilometers. The Minister of Public Works at the beginning of the year stated that on the Puerto Wilches railroad 80 per cent of the work to Conchal was completed. A survey of the section from Conchal to Bucaramanga, a distance of 40 kilometers, was completed, so that construction would commence shortly. On the Northern Railroad, it was planned to commence work on a new section, not less than 50 kilometers in length, making Puente Nacional the terminus of the road. It was hoped to have the work completed in four years. In the year 1926 the Pacific Railroad yielded a net profit of 1,800,000 pesos and for 1927 it was expected that the profits would be not less than 2,000,000 pesos. The work of extending the Cundinamarca Railroad was divided into two sections—namely those of Puerto Lievano and La Tribuna. On the latter section, at the beginning of 1927, 1000 workmen were employed, this number having been increased to 2000 in March. Orders for 308,708 pesos' worth of rolling stock for the line were placed in the United States, while additional purchases were made in Colombia for 125,000 pesos.

The Pacific Railroad, which runs from Buenaventura to Zarzal, had been building during the last two years a 57-kilometer extension to the city of Armenia, which recently celebrated the arrival of the railroad within its limits. The new section increased transportation facilities for the fertile region from Quindio to the Pacific and connects many towns of western Colombia with the capital, Bogotá. A road was to be built from Armenia to Ibague to serve until the railroad was completed between those cities. On September 18, 1927, the Tolima-Huila-Caqueta railroad was opened to public service as far as the city of Natagaima, in the southern part of the Department of Tolima. The inauguration of this line marks an important step toward the completion of this road, which is the continuation of the great main line running from east to west and therefore of vital interest to the economic life of the country.

A bill authorizing the Colombian government to purchase the Santa Marta Railroad, Cucuta-Villamizar Railroad, Cartagena-Calamar Railroad, and the section of the railroad built by the Department of Antioquia, between Bolombolo and the Arma River was made a law in the fall. The government was also authorized to obtain the amount needed from the national budget or negotiate a loan for the purchase of the various railroads.

GOVERNMENT. The executive power is vested in a president elected for four years by direct popular vote, and legislative power in a congress of two houses: the senate of 34 members, elected indirectly, and the house of representatives with 92 members elected by direct popular vote. President in 1927, Dr. Miguel Abadía Méndez, elected Feb. 14, 1926, for the term 1926–30.

HISTORY. At the beginning of the year a part of Colombia was under martial law due to strikes along the Magdalena River. The labor troubles were in the heart of the oil district and threatened to extend to the entire Pacific coast, but prompt government action prevented disorders and the difficulties were smoothed over, although strikes were frequently reported at later dates in the press.

COLORADO. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 939,629. The estimated population on July 1, 1927, was 1,074,000. The capital is Denver.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	1,646,000	3,107,000[a]	$28,267,000
	1926	1,618,000	3,265,000[a]	27,863,000
Wheat, winter	1927	1,231,000	16,003,000	16,803,000
	1926	1,207,000	14,484,000	15,643,000
Wheat, spring	1927	333,000	5,994,000	5,994,000
	1926	256,000	3,968,000	4,127,000
Potatoes	1927	113,000	16,046,000	8,825,000
	1926	84,000	11,760,000	15,288,000
Corn	1927	1,426,000	22,816,000	15,515,000
	1926	1,496,000	10,472,000	7,435,000
Dry beans	1927	287,000	1,578,000	4,261,000
	1926	350,000	1,050,000	2,940,000
Barley	1927	456,000	10,032,000	5,618,000
	1926	380,000	6,080,000	3,844,000
Oats	1927	189,000	5,481,000	2,631,000
	1926	195,000	4,680,000	2,059,000

[a] tons.

MINERAL PRODUCTION. Coal production, supplying about one half of the value of the State's mineral output, was somewhat greater in quantity in 1926 than in the year previous, though not quite its equal in value. There were produced 10,637,225 net tons of coal in 1926; in 1925, 10,310,551 tons. Their value for 1926 was $29,529,000; for 1925, $30,322,000. Of the chief metals the production was as follows: Gold, as to quantity, 334,339 fine ounces in 1926 and 349,617 fine ounces in 1925; and as to value, $6,911,405 in 1926 and in 1925 $7,227,022. Silver, in quantity, 4,624,000 fine ounces in 1926 and 4,506,940 fine ounces in 1925; in value, $2,885,376 in 1926 and in 1925 $3,127,816 in 1925. Copper, in quantity, 3,350,000 pounds in 1926 and 2,360,500 pounds in 1925; in value, $462,300 in 1926 and in 1925 $335,191. Lead, in quantity, 66,000,000 pounds in 1926 and 62,966,000 pounds in 1925; in value, $5,478,000 in 1926 and in 1925 $5,478,042. Zinc, in quantity, 65,000,000 pounds in 1926 and 61,621,000 pounds in 1925; in value, $4,745,000 in 1926 and in 1925 $4,683,196. In combined value, the production of these five metals for 1926 totaled $20,482,081, or $369,186 less than for 1925. Clay products, valued for 1925, the latest year of available record, at $4,126,945, furnished with mineral paints and pigments, stone, petroleum and sand and gravel the bulk of the remainder of the State's mineral output. Petroleum production for 1926 rose sharply, to 2,717,000 barrels, as against 1,226,000 barrels for 1925; in value, $5,000,000 for 1926 and for 1925 $1,810,000. For 1925, the entire mineral production of the State had a value of $63,148,959; for 1924, $61,487,882.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Nov. 30, 1926, were $10,205,575; their rate per capita was $9.66. They included $842,897 apportioned for education. Totals not included above, of $578,273 for interest payments and $5,046,275 for permanent improvement outlays brought the aggregate of State payments to $15,830,123. Of this, $5,590,510 was for highways; $1,679,991 being for maintenance and $3,910,519 for construction. Revenue receipts were $15,295,976; or per capita, $14.47. Of their total, property and special taxes yielded 44.5 per cent, attaining a per capita rate of $6.44. Earnings of the departments and compensation paid the State for officials' services supplied 12.9 per cent of revenue; 25.3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a tax on gasoline. Net State indebtedness on Nov. 30, 1926, was $12,325,370, or $11.66 per capita. Property subject to ad valorem taxation had a total valuation of $1,546,830,046. State taxes levied were $5,676,866, or $5.37 per capita.

Transportation. The total mileage of railroad lines on Dec. 31, 1926 was 5010.60. During 1927 one company built 47.25 miles of first track.

Education. A new law was enacted for the certification of teachers. According to W. B. Mooney in the *Journal* of the National Education Association, it rendered necessary the qualification of high school graduation plus twenty-five quarter-hours' additional training, for the present; while by 1931 two years' professional training after high school graduation would be needful. According to the State Superintendent of Public Instruction the school population of the State, of ages between 6 and 21, was 301,783 in 1926. The number of pupils enrolled in high schools was 55,754; this total included 20,969 enrolled in junior high schools. Enrollment in the grade schools was 181,123; in night schools, 13,210; and the total public school enrollment, 250,087. The aggregate of investment in public school buildings and grounds was $54,643,685. There were expended in 1926, for teachers' salaries, $12,836,208; for other current expenses, of school education, $5,783,479; for improvements (including furniture), $5,328,225.

Charities and Corrections. The chief institutions maintained by the State for the care or custody of individuals are the State Home for Dependent and Neglected Children, Denver; State Home and Training School for Mental Defectives, Ridge and Grand Junction; Industrial School for Girls, Morrison; Industrial School for Boys, Golden: State Reformatory, Buena Vista; State Penitentiary, Cañon City; State Hospital for the Insane, Pueblo; Soldiers' and Sailors' Home, Monte Vista; Industrial Workshop for the Blind, Denver; and a State Psychopathic Hospital. Prisoners in State penal and reformatory institutions on Jan. 1, 1927, according to statistics of the Department of Commerce, numbered 1129; patients in State hospitals for mental disease, 2324.

Legislation. The State Legislature in its regular session convened January 3. It raised the State tax on gasoline from two cents to three cents. It enacted a measure legalizing public boxing bouts of not more than ten rounds and creating a Boxing Commission of three members, appointed by the Governor, for the purpose of regulating boxing matches. A bill to remove from the counties the expense of bringing extradited persons back into the State and placing such expense on the State was passed but was vetoed by the Governor.

Political and Other Events. Governor William H. Adams and his administration took office January 11. The Moffat Tunnel water bore was holed through February 18, President Coolidge firing the final blast by long-distance electric connection from Washington. The railroad bore was holed through July 7; completed Dec. 10. The cost as measured by indebtedness of the Tunnel Commission was about $15,000,000 up to the latter part of the year. (See Tunnels.) Litigation over the seat of Judge Ben B. Lindsey on the Denver Juvenile Court ended adversely to him June 5, in the refusal of the United States Supreme Court to review the order ousting him on the ground of irregularities in his reëlection. The ouster order had been issued January 24, by the State Supreme Court. Lindsey took with him on leaving his judicial office a great number of papers relating to cases that he had handled. These he declared not to be of a public nature, and likely to compromise persons of good repute in Denver, in the regulation of whose conduct he had engaged, more or less in his judicial capacity. He burned publicly these papers containing records of some 5000 cases. A strike of coal miners in the State, under the direction of the Industrial Workers of the World, started October 18, and produced disorder at many points. Governor Adams served notice that strike picketing would not be allowed, and a march of I. W. W. forces toward one of the strike centres was later prevented. A special election was held in the First Congress District, comprising Denver, November 15, to fill the place of W. N. Vaile, the deceased Representative. S. Harrison White, former Chief Justice of the State, ran as Democratic nominee, on a platform opposing the Volstead act, and was elected over the Republican pro-Volstead nominee, Francis J. Knauss. The result marked a reversal of the former trend of opinion on prohibition in Denver. Benjamin F. Stapleton was reëlected Mayor of Denver on the preferential ballot system, among 15 candidates, receiving a large plurality May 17. A proposal to repeal the preferential voting system was defeated. Englewood voted April 5 for consolidation with Denver. The Denver City Council gave approval to the plan of the Public Service Company of Colorado to bring natural gas to the city from a distance and to sell it at graded rates.

Officers. Governor, William H. Adams; Lieutenant-Governor, George M. Corlett; Secretary of State, Charles M. Armstrong; Treasurer, Herbert C. Fairall (appointed November 10, to succeed Harry E. Mulnix, deceased); Auditor, William D. MacGinnis; Attorney-General, William L. Boatright; Superintendent of Public Instruction, Katherine L. Craig.

Judiciary. Supreme Court: Chief Justice, Haslett P. Burke; Associate Justices, John Campbell, John H. Denison, Greeley W. Whitford, John W. Sheafor, John T. Adams, Charles C. Butler.

COLORADO, UNIVERSITY OF. A coeducational State institution of higher education at Boulder, Colo.; founded in 1876. The number of students enrolled for the autumn term of 1927 was 2913, and the summer quarter had a registration of 3363. There were 288 faculty members, exclusive of assistants. The total income for general maintenance, from State, fees, tuition, etc., was estimated at approximately $1,163,213 while approximately $344,600, including fees, was received for operation of hospitals, and $184,259 for new buildings. The library contained 182,129 volumes, 17,000 pamphlets and 2500 maps. President, George Norlin, Ph.D., LL.D.

COLORED METHODISTS. See METHODISTS, COLORED.

COLUMBIA UNIVERSITY. A non-sectarian institution of higher education; founded in 1754. At Morningside Heights, Broadway and 116th St., New York City, are located: Columbia College (for undergraduate men); the professional schools of law, mines, engineering, chemistry, and architecture; the non-professional graduate faculties of political science, philosophy, and pure science; Barnard College (for undergraduate women); Teachers College, including the departments of education and practical arts; School of Journalism; School of Business; School of Library Service; and the University Library. The College of Physicians and Surgeons is on West 59th Street, the College of Pharmacy on West 68th Street, and the School of Dental and Oral Surgery on East 35th Street. In addition, through university extension and the summer session, courses are offered for resident students at Morningside Heights, and other courses are offered at Camp Columbia, as well as at several extra-mural centres.

On the basis of the enrollment on Nov. 1, 1927, the total number of resident students for the year was estimated at 37,144, distributed as follows: Undergraduates, 3200, of whom 2033 were in Columbia College, 1073 in Barnard College, and 94 in other schools; graduate and professional students, as follows: graduate faculties 2950; law, 812; medicine, 430; mines, engineering and chemistry, 191; architecture, 96; journalism, 146; business, 369; dental and oral surgery, 214; Teachers College, 5740; pharmacy, 829; optometry, 63; library service, 204; unclassified, 195; university extension, 10,732. The grand total is exclusive of 2884 duplicate registrations. Non-resident students, 8907 in number, were distributed as follows: in home study courses, 6258, in special and extra-mural courses, 2649. There were 13,857 registered for the summer session of 1927.

The faculty and officers of administration in 1927 numbered 2210, of whom all except 33 were in active service. This number was distributed as follows: professors, 265; associate professors, 119; assistant professors, 190; associates, 117; instructors, 302; lecturers, 79; assistants, 152; curators, 3; instructors, lecturers and assistants in Teachers College, 183; instructors and lecturers in the College of Pharmacy, 16; instructors in extension and home study, not included above, 375; instructors in summer session, not included above, 306; officers of administration, 71.

Among the appointments of the year 1926–27 were: Dr. Alfred Owre of the University of Minnesota, to be Dean of the Faculty of Dental and Oral Surgery; Prof. Samuel R. Detwiler of Harvard University and Prof. Philip E. Smith of Stanford University in Anatomy; Prof. George S. Counts of the University of Chicago and Dr. Jesse H. Newlon, Superintendent of Schools of Denver, Colo., in Education; Prof. Robert M. MacIver of the University of Toronto in Social Science; Jerome Michael, a graduate in law, Class of 1912, in Law; Dr. George Hughes Kirby in Psychiatry; Prof. Kenneth J. Saunders of the Pacific School of Religion as Visiting Professor of Comparative Religion; Jules Drach of the University of Paris as Visiting French Professor of Mathematics; Professor Bernard Faÿ of Paris, Michael I. Rostovtseff of Yale University, Dana C. Munro of Princeton and Sidney B. Fay of Smith College, as Visiting Professors of History; Navarri Tomās of Madrid in Phonetics; María de Maeztu of Madrid in Spanish; and George Rowley of Princeton in Chinese Art.

Important events of the year 1926–27 included the substantial completion of the Casa Italiana; the formal visit to the University on October 22, 1926 of Her Majesty, the Queen of Rumania, and the visit of the Lord Bishop of London who received on that occasion the degree of Doctor of Sacred Theology. Action was taken by the Faculty of Law providing for the admission of properly qualified students and graduates of Barnard College to the School of Law as regular candidates for the degree of Bachelor of Laws. The School of Tropical Medicine of the University of Porto Rico, established and maintained with the coöperation of Columbia University, was formally inaugurated on Sept. 22, 1926. The completion on October 7, 1926, of twenty-five years of service by the President of the University was commemorated on March 3, 1927 by the Trustees and on April 19, 1927, by the Faculties. Substantial progress was made in the erection of the new Medical Centre buildings, on Washington Heights, to house the College of Physicians and Surgeons of the University, the Presbyterian Hospital, and other medical institutions.

During 1926–27 the University received 175 gifts in money representing a total of $2,126,217.78. Among the items in the list of gifts were: $500,000 from the estate of Annie C. Kane, for the general purposes of the University; $500,000 to establish the William C. Schermerhorn Memorial Fund; $416,612.67 from the Carnegie Corporation toward the cost of the new Medical School buildings; $116,666.67 from Frederick W. Vanderbilt and $50,000 from Harold S. Vanderbilt, for the new Vanderbilt Clinic; $73,750 for research in Social Sciences; $21,500 for social research in France; $20,000 for research work in legal education from the Laura Spelman Rockefeller Memorial; $27,450 from the estate of Annie M. McClymonds to establish the Louis K. McClymonds Scholarship Fund; $27,000 from the estate of S. Whitney Phoenix for the Phoenix Legacy; $25,000 from the Alumni Fund Committee for the general purposes of the University; $25,000 from an anonymous donor for a new boathouse; $25,000 from the estate of Walter B. James to establish the Walter B. James Fellowship Fund; $25,000 from the Carnegie Corporation for the School of Library Service; $18,000 from the Borden Company for the Borden Research fund in Food Chemistry and Nutrition; $15,000 from the Commonwealth Fund for the Psychiatric Commonwealth Clinic Fund; $15,000 from the estate of Norton Perkins to establish the Edward S. Perkins Scholarship Fund; $10,000 from Mrs. Honore Gibson Pelton to establish the William Henry Gibson Scholarship Fund; $10,000 from J. William Clark for the School of Dental and Oral Surgery Building Fund. In addition to the above amounts given to the University proper, Barnard College received $177,387.15 and Teachers College $1,194,695.27.

The total endowment amounted to $62,592,337.56. The estimated value on July 1, 1927, of the University property was $44,182,860.34. The budget for 1927–28, including not only Columbia University but the affiliated Barnard College, Teachers College, and the College of Pharmacy, was $12,028,119.26. President, Nicholas Murray Butler, Ph.D., LL.D.

COLVIN, SIR SIDNEY. British art and literary critic, died in London, England, May 11. He was born at Norwood, June 18, 1845, and was educated at home and at Trinity College, Cambridge, where he became a fellow in 1868. He was Slade professor of fine art at Cambridge, 1873–85, and director of the Fitzwilliam Museum, 1876–84. He became keeper of the prints and drawings of the British Museum in 1884, serving until 1912. He received the honorary degrees of M.A. and D.Litt. from Oxford, and that of LL.D. from the University of St. Andrews, and was knighted in 1911. He was a corresponding member of the Institute of France and of the Royal Academy of Belgium. He was honorary fellow of the Royal Society of Painter-Etchers, vice president of the Library Association, and a member of various art societies. He was a careful and enthusiastic lecturer and teacher while at Cambridge, and his work at the British Museum involved a critical revision of the arrangement of the drawings and prints. In 1873 he first met Robert Louis Stevenson, and the friendship between them continued until Stevenson's death in 1894. Colvin became Stevenson's literary executor and edited *The Vailima Letters* and other works. He wrote extensively, his publications including numerous contributions, chiefly on history and criticism of fine arts, made to such periodicals as the *Pall Mall Gazette, Fortnightly Review, Portfolio, Cornhill Magazine, Nineteenth Century* and *Edinburgh Review*. He also contributed to the *Dictionary of National Biography* and other standard works of reference. His original writings and works edited include: *Life of Landor* (1881); *Life of Keats* (1887), in Morley's *Englishmen of Letters Series; A Florentine Picture-Chronicle* (1898); *Early Engraving and Engravers in England* (1906); *Drawings by Old Masters at Oxford* (1902–08); *John Keats, His Life and Poetry, etc.* (1917); *Memories and Notes* (1921); *Selections from Landor,* in *Golden Treasury Series* (1882); *Letters of Keats,* in *Eversley Series* (1887); Edinburgh edition of R. L. Stevenson's works (1894–97); and *Letters of R. L. Stevenson* (1899 and 1911).

COMER, BRAXTON BRAGG. Former Governor of Alabama, died at Birmingham, August 15. He was born in Barbour County, Alabama, Nov. 7, 1848, and graduated from the University of Alabama in 1865. He had extensive farming as well as banking and cotton mill interests, and was a member of the Commoners' Court of Barbour County, 1874–80. He was president of the Alabama Railroad Commission, 1905–07, and Governor of Alabama, 1907–11. He was appointed in March, 1920, a member of the United States Senate to fill the vacancy caused by the death of Senator Bankhead. In 1922 he became associated with Frederick I. Thompson in the publication of the *Birmingham Age-Herald.*

COMETS. See ASTRONOMY.

COMMISSION PLAN. See MUNICIPAL GOVERNMENT.

COMMODITY PRICES. See BUSINESS REVIEW; FINANCIAL REVIEW.

COMORO ISLANDS. See MAYOTTE AND THE COMORO ISLANDS.

COMPANIONATE MARRIAGE. See MARRIAGE AND DIVORCE.

CONCERTS. See MUSIC.

CONGO, BELGIAN. A Belgian colony in Central Africa, formerly the Congo Free State, which was annexed to Belgium in 1908. The boundaries were defined by declarations of August, 1885, and December, 1894, and by treaties with Germany, France, Great Britain, and Portugal. Area, estimated at 909,654 square miles; the native population is placed at 8,500,000 (Bantu). On Jan. 1, 1925, the white population numbered 12,795, of whom 7770 were Belgians. The chief city and former capital is Boma; by a royal decree of 1923, the capital was transferred to Kinshasa, which was renamed Leopoldville. Other important towns are Elizabethville, Stanleyville, and Koquilhatville. Catholic and Protestant bodies carry on missionary work, the number of Catholic missionaries being 888 and of Protestants, 518. In coöperation with the government they supply means of education, and there are several educational institutions under direct government control, at the more important towns. In 1925 the government grant for education to the missionaries amounted to 2,417,000 francs, while the total expenditure on education was 4,265,700 francs.

COMMERCE, FINANCE, ETC. The foreign commerce of the Belgian Congo during 1926 maintained the steady upward tendency that had prevailed since before the World War. Imports increased by more than 20 per cent in volume as compared with 1925, reaching the record total of 632,000 metric tons, valued at 1,291,197,000 francs. For the first time in years there was an arrest in the upward progression of outgoing shipments, due to a transportation crisis which prevented exports from developing normally. However, the volume of exports, totaling 204,000 metric tons, was only slightly lower than that in 1925, while the value was much higher at 729,302,000 francs. Of the principal exports, on a volume basis, raw copper dropped rather sharply in 1926 to 78,983 metric tons, palm oil was stationary, and copal showed a substantial increase. Exports of raw cotton totaled 2179 metric tons, an increase of almost 75 per cent over 1925. Other noteworthy increases occurred in the cases of diamonds, gold, rubber, cacao, and sesame. There was a falling off in outgoing shipments of corn, rice, peanuts, ivory, and a few of the other principal exports. Belgium was, as usual, the principal buyer and principal supplier during the year. In 1925 the revenues were estimated at 146,555,000 francs, and the expenditure, 137,086,745 francs. The public debt on Jan. 1, 1925, was 648,997,235 francs. Expenditures as a rule, regularly exceed revenues, with the result that loans frequently have to be resorted to, in order to balance the budget.

Steamers belonging to the government ply on the Congo in the navigable section from its mouth to Matadi, a distance of 95 miles, and government and private companies supply a transport service on the upper Congo and its tributaries. There are over 1000 miles of navigable water between Stanley Pool and Stanley Falls, and above Stanley Falls there is another section navigable for about 585 miles. The tributaries of the Congo are also navigable for part of their courses. There are about 1300 miles of railways and 7500 miles of roads partly suitable for motor traffic.

The Governor-General in 1927 was M. Rutten (appointed Jan. 24, 1923).

CONGO FREE STATE. See CONGO, BELGIAN.

CONGO, FRENCH. See FRENCH EQUATORIAL AFRICA.

CONGREGATIONALISM. A religious denomination founded in the United States by the Pilgrims at Plymouth, Mass., in 1620, under the leadership of Brewster, Bradford, and Winslow. The origin of this movement lay in the Separatist activity in England. The Puritans of Massachusetts Bay followed a similar tendency, and as a result the essential elements of Separatism and Puritanism were combined into Congregationalism. In this denomination each church holds the right to frame its own statement of belief, and the policy of the denomination as a whole represents adaptation to conditions rather than accord with a theory of church government. The National Council, by which the administrative affairs of the church are carried on, has no ecclesiastical authority, but includes ministerial and lay delegates elected by the State Conferences and district associations. The National Council meets biennially, the session in 1927 being held in May at Omaha, Nebraska.

Statistics of the denomination for Jan. 1, 1927, showed 5608 churches, 5571 ministers, and a church membership of 914,698; there were 3005 young people's societies, with a membership of 121,868. The Sunday school enrollment was 769,372. The total raised for all benevolences was $4,618,660, and the home expenses of the church were $22,104,535. The national Benevolence Societies of the denomination are the American Board of Commissioners for Foreign Missions and the Congregational Home Boards, consisting of the following seven corporations unified in their operations by the election of an identical Board of Directors for all: American Missionary Association, Congregational Home Missionary Society, Congregational Church Building Society, Congregational Board of Ministerial Relief, Congregational Sunday School Extension Society, and the Congregational Publishing Society. The Annuity Fund for Congregational Ministers provides a participating plan of retiring pensions.

The American Board of Commissioners for Foreign Missions is the oldest foreign missionary society in America, having been organized June 29, 1810. In 1927 it conducted 18 missions in 15 countries; the stations connected with these missions numbered 109, and the outstations 1750. The missionaries holding life appointments were 662, and included 161 ordained men, 68 unordained, 217 wives, and 216 single women; in addition, there were 107 associates who serve for shorter periods, making a total of 769 missionaries. Religious services were carried on in 2688 places, where there were 751 organized churches, with 96,353 communicants.

CONGREGATIONAL CHURCHES AND MEMBERS

Countries	*Churches Chapels and Stations*	*Members of Churches*	*Members of Sunday Schools*
[a] Africa	1,541	44,570	25,792
Australia and New Zealand	489	21,470	33,516
British Guiana	45	4,300	8,986
[a] Bulgaria	57	1,255	2,147
[b] Canada	8,100	650,000	700,000
[a] China	1,200	34,852	15,060
[a] Czecho-Slovakia	117	3,407	3,000
[c] England and Wales ..	4,700	438,080	411,193
[a] India and Ceylon	1,711	41,293	52,886
Ireland	55	3,200	4,815
[c] Jamaica	33	2,867	3,609
[a] Japan	417	25,491	28,813
[a][c] Madagascar	700	36,164	37,537
[a] Mexico	52	842	1,221
[a] Micronesia	107	3,866	8,694
Newfoundland	4	225	880
[a] Papua	25	4,516	6,771
[a] Philippines	60	2,537	2,526
Scotland	168	37,610	22,958
[c] South Seas	250	16,865	15,657
[a] Spain	19	2,537	550
[a] Turkey and Syria ...	110	8,000	5,091
United States	5,608	914,698	769,372
Total	25,568	2,293,145	2,144,524

[a] Includes reports of London Missionary Society and American Board.

[b] United Church. Comprises Presbyterian, Methodist, and Congregational churches, accounting for increase in totals.

[c] Repeated from last *Congregational Year Book.*

The total constituency, including church members and all influenced by missions, numbered 284,903; there were 1442 Sunday schools and 79,512 pupils. In the educational field the Board had 37 theological and training schools, with 1804 students, and 7 colleges, with 3243 enrolled, as well as many secondary and elementary schools. In schools of all types there were 94,134 pupils. There were 30 hospitals and 65 dispensaries. Expenditures of the Board for the year ending Aug. 31, 1926, were $2,152,272.49.

The field of the American Missionary Association extended from the Atlantic Coast and Porto Rico to the Hawaiian Islands. It included in the South and the Southwest the Negroes, the Highlanders, and Spanish-speaking people; in the West the Indians and the Orientals. The statistics of the Association for 1926–27 showed 233 churches; 11,780 members; 33 schools, with 7774 pupils. The expenditures during the same period amounted to $1,107,242.06.

The Home Missionary Society carried on its work in 1926–27 in 42 states, with 1429 missionaries under commission for the whole or part of the year. The chief foreign work was carried on among the German people, 72 churches and missions using that language in their service. During the year 26 new churches were organized and 36 new church buildings erected. Receipts of the society for the year totaled $420,196.71. The total receipts of the Church Building Society in 1926–27 were $628,792.17. The contributions for church buildings amounted to $179,667.60; repaid grants and sales of abandoned churches to $39,449.66; and income from other sources to $125,423.22. The Board voted 265 church grants and loans and paid $589,901.90 on 121 new churches and 39 parsonages.

The denomination had affiliations with 10 theological seminaries, the more important being: Chicago Theological Seminary; Yale Divinity School; Hartford School of Religious Pedagogy; Oberlin College and Pacific University. In addition, there were 41 colleges, some of which were undenominational, but which had historical relation to Congregationalism.

The headquarters of the National Council are at 287 Fourth Avenue, New York City. In 1927–29 Dr. Ozora S. Davis of Chicago, Ill., was moderator of the Council; the Hon. William E. Sweet, of Denver, Colo., associate moderator; the Rev. Charles E. Burton, New York, secretary; and Edwin G. Warner, New York, treasurer. The Congregational Publishing Society maintains branches at 14 Beacon Street, Boston, Mass., and 19 South La Salle Street, Chicago, Ill. The accompanying table is a reprint from the *Congregational Year Book* for 1926 and shows statistics of international Congregationalism.

CONGREGATIONAL METHODISTS. See METHODISTS, CONGREGATIONAL.

CONGRESS. See UNITED STATES.

CONNECTICUT. POPULATION. According to the Fourteenth Census the population of the State on Jan. 1, 1920, was 1,380,631. The estimated population on July 1, 1927, was 1,636,000. The capital is Hartford.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	370,000	538,000[a]	$11,592,000
	1926	374,000	435,000[a]	11,062,000
Tobacco	1927	23,600	28,886,000[b]	10,399,000
	1926	21,900	29,346,000[b]	10,447,000
Potatoes	1927	15,000	1,635,000	2,698,000
	1926	14,000	2,170,000	3,906,000
Corn	1927	55,000	2,090,000	2,508,000
	1926	54,000	2,268,000	2,608,000
Apples	1927	.....	1,045,000	1,776,000
	1926	.....	1,900,000	1,900,000

[a] tons, [b] pounds.

MINERAL PRODUCTION. The State had a mineral production in 1925 of a total value of $6,755,454; in 1924, of $8,129,332. The main products were, in their order of value in 1925, stone, clay products, and lime, none other attaining a total as high as $500,000.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $18,783,941; their rate per capita was $11.82. They included $1,514,935 apportioned for education. Totals not included above, of $53,308 for public service enterprises, $656,865 for interest payments and $7,254,551 for permanent improvement outlays brought the aggregate of State expenditure to $26,748,665. Of this, $9,676,657 was for highways; $3,930,887 being for maintenance and $5,745,770 for construction. Revenue receipts were $29,599,905; or per capita, $18.63. Of their total, property and special taxes yielded 28 per cent, attaining a per capita rate of $5.22. Earnings of the departments and compensation paid the State for officers' services supplied 10 per cent of revenue; 52.3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a tax on gasoline sales. Net State indebtedness on June 30, 1926, was $3,604,377, or $2.27 per capita. Property subject to ad valorem taxation had a total valuation of $2,418,096,161. State taxes were levied to the total of $1,812,963, or $1.14 per capita.

TRANSPORTATION. The total railway mileage on Dec. 31, 1926, was 967.53. During 1927 one company built 0.55 mile of new first track.

EDUCATION. The system went into effect July 1, whereby only graduates of approved two-year normal schools might be admitted as new teachers into the elementary schools, the superintendent of schools having sole power to nominate teachers. Increase in the number of junior high schools and development of housing for them was reported by A. B. Meredith, Commissioner of Education, in the *Journal* of the National Education Association. As stated by the State Board of Education in 1927, the school population of Connecticut was reckoned to be 371,662 children from 4 to 16 years of age. There were enrolled in the public schools 301,905 pupils, of whom 262,272 were in common schools and 39,633 in high schools. Expenditure in the last preceding school year, for education, was $32,370,113. The salaries of public school teachers averaged $1616.

CHARITIES AND CORRECTIONS. The State Department of Public Welfare, created in 1921, comprises two bureaus, the bureau of child welfare and that of adult welfare, and reports also on the penal and reformatory institutions, those for the insane, feeble minded and epileptic, 33 public hospitals, 7 State sanatoria for tuberculosis, town and county almshouses, private homes for the aged and institutions for children. The Department reported for 1924, 534 inmates in the State Prison at Wethersfield; in the State hospital for the insane at Middletown, or on parole, 2768.

LEGISLATION. The General Assembly convened in regular session January 5 and adjourned May 6. The appropriations passed totaled $42,158,063 for the ensuing two-year period, and for the first time in the history of the State exceeded $40,000,000. The Legislature followed the recommendation of Governor Trumbull that it avoid increasing the State debt. In consonance with recommendations of the Governor in a special message of April 13, was enacted a law merging the functions of the Board of Control and the Board of Finance and creating a Board of Finance and Control of ten members, seven of them ex officio, having at its head a salaried appointed commissioner. The purpose of this board was the centralization of the State's accounting and budget-making, with a view to economy in the entire field of expenditure. There was imposed a special tax of 4 per cent on gross income of places of amusement of certain specified types, replacing a moving picture tax that had been created by the preceding session.

Receipts of the Motor Vehicle Department were allocated in part to the State Highway Department for expenditure on trunk line highways and on State aid roads. Salaries of court judges, some State commissioners, and sheriffs were increased, and likewise court fees. Changes in the motor vehicle laws included the setting of the age limit for drivers at 16 years; the elimination of the "prima facie" speed limit and the adoption in its place of a clause limiting driving to reasonable speeds; the increase of the weight limit for trucks to 26,000 pounds. A State Department of Aviation was created to administer the State laws regulating commercial flying. Provision was made for the erection of a building at Hartford for the Motor Vehicle and Highway departments, and for the building of an armory at New Haven and one at Bristol. The State Police was placed under a commission with a single head. A law of 1925 exempting from jury duty those who had served within five years was repealed, but an effort to give women the power to serve on juries failed of passage. Powers under the State right of eminent domain were granted to the Connecticut Light and Power Company. A commission of six was created to revise the general statutes of the State. Armistice Day was made a legal holiday.

Political and Other Events. Governor Trumbull early in the year advocated the departure from the State's policy not to incur debt for improvements. Later he accepted the plan of a unified Commission of Control and Finance to coördinate and trim expenditure, as a means to obviate a bond issue. A firm of accountants reported to this commission in October that the State agencies had on June 30 cash in excess of immediate demands to a total of $5,750,146, or about the amount that it had been estimated that the State might have to raise by bond issue. In the matter of clashing State and local rules as to milk supply, the Deputy Attorney General made a ruling setting aside local regulations, these in many cases being stricter than those of the State. The State opposed an effort made in a Federal District Court of South Carolina to compel production of records supplied by an insurance company to one of the Connecticut administrative departments, maintaining the exclusive property of the State in such records. Application was made for the abandonment of the unprofitable trolley line between Meriden and Middletown. Airplane communication by a regular line, with New York and Boston, was begun at Brainerd Field, Hartford, about the end of May.

The New England flood of the first week of November while not at its worst in Connecticut did much damage in the Connecticut River Valley and overflowed a great part of East Hartford. The State authorities opposed the plan of Massachusetts to divert the waters of Swift and Ware Rivers, in Massachusetts, to provide additional water for the Boston supply. Contending that the appropriation of this water as contemplated by Massachusetts statute would diminish the flow of the Connecticut River within Connecticut territory, with detriment to interests there, the State of Connecticut lodged a protest with the Federal War Department, against issue of a Federal permit for the project.

Officers. Governor, John H. Trumbull; Secretary of State, F. A. Pallotti; Treasurer, E. E. Rogers; Comptroller, F. M. Salmon; Attorney General, Benjamin W. Alling.

Judiciary. G. W. Wheeler, Chief Justice; John K. Beach, H. J. Curtis, W. M. Maltbie, John E. Keeler, F. D. Haines, G. E. Hinman, Associate Judges.

CONSUMERS' SOCIETIES. See Coöperation.

COOK, Albert Stanburrough. American scholar, and professor emeritus of English language and literature at Yale University, died at New Haven, Conn., September 1. He was born at Montville, N. J., Mar. 6, 1853, and graduated from Rutgers in 1872 with the degree of B.S., receiving that of M.S. in 1875. After serving as tutor of mathematics at Rutgers and as teacher in the Freehold, N. J., Institute, he studied in Europe at the Universities of Göttingen and Leipzig, returning to the United States in 1879 as associate in English at Johns Hopkins University. He studied at Jena, 1881–82, receiving the degree of Ph.D. in the latter year, and returned to the United States to become professor of English at the University of California. He served there until 1889, when he went to Yale as professor in English language and literature, a chair he held until 1921, when he was made professor emeritus. His scholarship was recognized by honorary degrees, including the honorary M.A. from Rutgers in 1882 and from Yale in 1889; L.H.D. in 1889 and LL.D. in 1906 from Rutgers; and Litt.D. from Princeton in 1918. He was active in professional and literary associations, being president of the State Teachers' Association of California in 1887, of the Modern Language Association of America in 1897, and of the Concordance Society, 1906–25. He was a member of the Netherlandish Society of Letters of Leyden, and served as secretary of the National Conference on entrance examinations in English, 1897–99. He was coëditor for English of *Journal of English and Germanic Philology*, 1897–1905, and founded the annual prizes in poetry at Yale and the University of California. He was editor of the *Yale Studies in English* (70 vols.) which were published after 1898, and he contributed extensively to the journals of learned societies. His writings include: *The Art of Poetry* (1892); *The Bible and English Prose Style* (1892); *First Book in Old English* (1894); *The Artistic Ordering of Life* (1898); *The Higher Study of English* (1906); *The Authorized Version of the Bible and Its Influence* (1910); *The Possible Begetter of the Old English Beowulf and Widsith* (1922); *The Old English Andreas and Bishop Acca of Hexham* (1924); *The Aims in the Teaching of English Literature* (1925); *and Cynewulf's Part in our Beowulf* (1925).

COÖPERATION. If one idea has taken universal hold on our modern industrial world, it is that of the coöperative society. It has many phases; there are the coöperative stores, credit societies, building and loan associations, insurance groups, agricultural pools, artisans' and labor productive societies. Local societies are banded together sectionally and nationally. There was in existence in 1927 an international wholesale society, an international educational society and a women's international guild. In some countries from 45 to 40 per cent of the population was being reached through consumers' coöperative organizations. In an examination of thirty-five countries[a] made by the U. S. Federal

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[a] Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Ceylon, China, Czechoslovakia, Denmark, Egypt, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, India, Japan, Latvia, Malay States, Netherlands, Norway, Palestine, Poland, Portugal, Rumania, Russia, South Africa, Sweden, Switzerland, Ukrainia, United States, Yugo-Slavia.

Bureau of Labor, statistics showed there were operating in those countries 300,000 societies with a combined membership of more than 44,500,000 persons.

The consumers' coöperatives alone number 50,000 societies in 22 countries, with a membership of 27,000,000 persons and yearly sales of over five and one-half billion dollars. A single fact such as the following is of startling significance: The English Coöperative Wholesale Society was the largest manufacturing, trading, and land-owning unit in the United Kingdom. The following table indicates how important are the consumers' coöperative societies in some countries of the world:

PER CENT OF POPULATION SUPPLIED THROUGH CONSUMERS' COÖPERATIVE SOCIETIES

	Per cent
United Kingdom	45
Denmark	40
Finland	40
Hungary	40
Iceland	35–40
Switzerland	35
France	30
Russia	30
Belgium	20
Germany	20
Sweden	20
Norway	15
Netherlands	10
Bulgaria	8
Australia	6
United States	2.5
Argentina	1

In Great Britain there were 1825 consumers' coöperatives with 5,017,464 members, in Denmark 5148 societies with 865,002 members, in France 4131 with 3,111,322 members, in Germany 50,181 with 3,382,011 members, in India 61,016 with 2,508,827 members, in Russia 78,865 with 19,129,033 members, in the United States 12,149 with 2,815,230 members. In various countries various types of societies have been developed more rapidly than others. In Great Britain and the United States the consumers' coöperatives lead all the rest. In Germany the credit society had flourished mightily; and in Denmark the agricultural society led. France and Italy were the homes of workmen's productive groups, and while in Italy these had been destroyed by the Fascist régime, in France they still prospered.

An examination of the membership and sales of local consumers' societies for the most successful countries in which the system is in operation (compared with the United States) would indicate the following:

Country	*Average membership per society*	*Average yearly sales per society*	*Average yearly sales per member*
Belgium	5,004	$357,385	$71
Great Britain	3,810	687,764	181
Germany	3,218	139,536	43
Australia	2,838	......	...
United States	310	105,543	354

In some countries the wholesale coöperative had advanced rapidly, as well. The Coöperative Wholesale Society of Great Britain, in 1926, did $366,409,652 worth of business, the Scottish Coöperative Wholesale Society $81,357,767, the Russian Wholesale Coöperatives (1925) $117,981,324, the German (1926) $70,013,405, the Danish (1925) $34,936,371. In England alone (1925) the Wholesale Coöperative manufactured goods to the value of $137,496,185. The following were the commodities produced by this organization: Flour, provender and oil cake, biscuits, confectionery, butter, cheese, margarine, lard, bacon, preserves, pickles, vinegar, yeast, tea, coffee, cocoa, chocolate, drugs and chemicals, tobacco and cigars, cotton and woolen cloth, hosiery, clothing (including outer clothing, underwear, shoes, corsets), leather and leather bags, furniture, hardware, cutlery, bicycles, motor vehicles and motor cycles, scales, brushes, mats, soap, paints, harness, trunks, picture framing, printing and bookbinding, china, earthenware and pottery, oils, lumber and its products, bottles, and coal.

Certain international phases of the movement are worthy of attention. There was in existence an International Women's Coöperative Guild made up of the wives of coöperators. In 1886 there was formed the International Coöperative Alliance, which, since 1910, had limited itself exclusively to consumers' coöperative societies. One of the chief principles of the Alliance is publicity and propaganda on behalf of the movement. In 1924 there was formed an international coöperative wholesale society. In 1927 the membership totaled 26 national wholesale societies. In 1926 these societies imported from one another goods to the value of $94,561,210. England led with $75,695,317, Germany was next with $6,416,563. The others were not significant.

Another interesting phase of the coöperative movement was disclosed in an investigation by the International Economic Conference (League of Nations). This showed that in certain countries agricultural coöperative organizations played very important rôles in international trade. In 1925, 54.3 per cent of Latvia's bacon exports were handled by coöperatives; in 1925, 50 per cent of Russia's egg exports were handled similarly; in 1925–26, 66.7 per cent of Canada's wheat exports were thus handled; in 1926, 90 per cent of the United States' raisin crop was raised by coöperatives; in 1924–25, 85 per cent of South Africa's tobacco crop was exported by coöperatives, and during 1925 or 1926, the butter exports of the following countries were handled in the proportions indicated: Finland, 70–80 per cent; New Zealand, 92 per cent; Latvia, 90 per cent; Russia, 100 per cent. See AGRICULTURE; HORTICULTURE; AGRICULTURE, U. S. DEPARTMENT OF.

BUILDING AND LOAN ASSOCIATIONS. At the July, 1926, meeting of the League of Local Building and Loan Associations of the United States the following figures were made public as to the status of the building and loan associations for 1924–25.

Total number of associations	12,403
Total number of members	9,886,997
Total assets	$5,509,176,154
Total mortgage loans	5,085,009,639

In New Jersey, Ohio, and Pennsylvania the associations were particularly popular. Of the total number New Jersey had chartered 1410, Ohio 865 and Pennsylvania 4440. Among these three there were total assets of $2,483,100,000 and total mortgages outstanding of $2,290,000,000.

At the 1927 meeting the following were the figures made public for 1925–26. It will be seen that in the single year membership increased 8 per cent and assets 15 per cent. In the one year mortgage loans of $1,945,000,000 were made.

Total number of associations	12,626
Total number of members	10,665,705
Total assets	$6,334,103,807
Total mortgage loans	5,851,689,591

LABOR BANKS. The accompanying figures will be of interest to students of the labor movement. They are the work of the research department of the Amalgamated Clothing Workers of America (published in the *Monthly Labor Review*), and show the status of labor banks as of Dec. 31, 1926. During 1926 the Brotherhood of Locomotive Engineers Coöperative Trust Co., (N. Y.) was sold to private parties and the Brotherhood Savings and Trust Co. (Pittsburgh) discontinued business. These, however, were replaced in the field by the Gary Labor Bank and the Brotherhood National Bank (San Francisco).

It should be further noted that from Jan. 1, 1927, to June 30 three more Labor banks left the list, viz., The Brotherhood of Locomotive Engineers Title & Trust Co. (Philadelphia), The Brotherhood of Locomotive Engineers Bank and Trust Co. (Birmingham, Ala.)—both of which sold out to private interest—and the Brotherhood State Bank (Kansas City) which was no longer being controlled by labor.

Progress in this branch of labor coöperative activity has not been rapid. In the last six months of 1926 the surplus and profits of all the labor banks increased 0.4 per cent, deposits 1 per cent, and resources 0.4 per cent.

INTERNATIONAL COÖPERATIVE CONGRESS. The twelfth congress was held in Stockholm Aug. 15–18, 1927. Some 424 delegates attended from 28 countries. The most important action taken by the congress was the passage of a resolution urging upon the constituent societies the necessity for development independent of private capital and pointing out the wastefulness of duplicate effort in the same localities. The point made was the unity of coöperation the world over. Said the resolution: "Experience has shown that the coöperative organizations which have developed their activities with coöperative capital, and have avoided dependence on banks and other financial institutions, have been able to overcome even those crises which have had such a paralyzing effect on enterprises dependent on credit." Other resolutions were aimed at closer coöperation between consumers' and agricultural coöperatives and the development of coöperative banking. There were others passed favoring free trade, and expressing abhorrence of all militarism. A resolution to treat with the Amsterdam International and the Moscow International on topics mutually important to trade unionism and coöperation was voted down. A central committee of 57 members, representing 23 countries, was elected. Dr. James P. Warbasse was reëlected United States representative. Vienna was chosen as the seat of the next congress, 1930.

STATISTICS. The U. S. Bureau of Labor Statistics, in the spring of 1927, published an impor-

CONDITION OF LABOR BANKS IN THE UNITED STATES AS OF DEC. 31, 1926

Name of bank and location	*Surplus and profits*	*Total deposits*	*Total resources*
Mount Vernon Savings Bank,[a] Washington, D. C.	$144,208	$4,237,402	$4,825,216
Brotherhood of Locomotive Engineers Coöperative National Bank, Cleveland, Ohio	398,274	23,174,453	25,483,728
United Bank & Trust Co., Tucson, Ariz.	2,102	528,182	600,284
Peoples Coöperative State Bank, Hammond, Ind.	36,922	1,716,757	1,901,777
Nottingham Savings & Banking Co., Cleveland, Ohio	11,119	751,908	845,527
San Bernardino Valley Bank, San Bernardino, Cal.	29,240	1,860,163	2,065,427
Amalgamated Trust & Savings Bank, Chicago, Ill.	159,645	2,837,297	3,230,895
Transportation Brotherhoods National Bank, Minneapolis, Minn.	68,612	2,241,884	2,611,000
Amalgamated Bank of New York	230,426	7,824,520	8,642,113
Labor National Bank of Montana, Three Forks, Mont.	9,727	166,745	201,471
Federation Bank & Trust Co. of New York	948,165	16,551,141	19,081,983
Telegraphers National Bank of St. Louis, Mo.	192,368	6,266,662	7,217,467
Brotherhoods Cooperative National Bank, Spokane, Wash.	65,919	2,823,186	3,293,820
Brotherhood of Railway Clerks National Bank, Cincinnati, Ohio	52,183	3,788,101	4,254,937
United Labor Bank & Trust Co., Indianapolis, Ind.	7,815	875,323	1,117,126
International Union Bank, New York City	209,274	3,512,487	4,005,226
First National Bank in Bakersfield, Cal.	25,384	1,508,115	1,637,095
Labor National Bank, Great Falls, Mont.	18,755	549,397	668,152
Farmers & Workingmen's Savings Bank, Jackson, Mich.	18,827	792,858	911,948
The Peoples National Bank of Los Angeles, Cal.	54,363	3,520,701	4,206,603
Brotherhood of Locomotive Engineers National Bank, Boston, Mass.	76,108	3,550,176	4,388,631
Labor Coöperative National Bank, Paterson, N. J.	104,845	3,790,956	4,414,147
Brotherhood State Bank, Kansas City, Kan.	21,786	669,998	791,785
Brotherhood Coöperative National Bank of Portland, Oreg.	54,583	2,211,478	2,667,409
Brotherhood of Locomotive Engineers Bank & Trust Co., Birmingham, Ala.	67,351	1,261,803	2,114,092
Brotherhood State Bank, Hillyard, Spokane, Wash.	5,875	192,642	224,428
Brotherhood of Locomotive Engineers Title & Trust Co., Philadelphia, Pa.	257,495	1,247,002	2,051,612
Labor Coöperative National Bank,[b] Newark, N. J.	125,000	2,407,170	2,853,995
Brotherhood Coöperative National Bank, Tacoma, Wash.	43,114	2,803,376	3,252,215
The American Bank, Toledo, Ohio	50,000	629,831	882,952
Brotherhood Bank & Trust Co., Seattle, Wash.	41,411	905,020	1,196,431
Gary Labor Bank, Gary, Ind.	11,346	480,445	577,430
Labor Bank & Trust Co., Houston, Texas	19,843	338,069	460,111
Hawkins County Bank,[c] Rogersville, Tenn.	62,963	588,651	701,614
Labor National Bank of Jersey City, Jersey City, N. J.	65,807	1,183,687	1,525,652
Brotherhood National Bank of San Francisco, Cal.	115,283	1,837,289	2,452,879
Total (36 banks)	3,806,143	109,624,781	127,357,178

[a] Statement as of June 30, 1926.
[b] Statement as of Dec. 1, 1926.
[c] Statement as of Nov. 22, 1926.

tant summary of the growth of the coöperative movement (other than agricultural) called *Coöperative Movement in the United States in 1925*. The following facts may be summarized:

1. In 1925 the total cooperative membership was 700,000, the business done was $300,000,000, and several million people were reached.

2. The Middle West has been the seat of the greatest development of the consumers' coöperatives. Credit unions, which had their greatest growth since 1920, developed largely in the East.

3. The workers' productive societies have shown the smallest growth. In 1925, these societies did a business of $9,000,000. Some 4500 persons had membership in them.

4. The credit coöperatives have developed more rapidly than the regular consumers' societies. In 1925 these made loans of more than $20,000,000 and had a membership of 170,000 persons.

5. The housing coöperative societies have made their appearance, for the most part, in New York City. These groups have provided dwellings for 1805 families and own $4,000,000 in property.

6. The consumers' societies appear to have weathered successfully the hard times that followed 1920. In 1925 nearly 25 per cent of these had sales of $100,000 or more. Nearly three-fourths of them showed profits for the year (average 3.9 per cent on sales). The societies have been putting their money into reserves, instead of dissipating it in the form of dividends, as shown by the fact that the reserves of the societies total more than half of the paid-in share capital. Three-quarters of a million dollars in dividends were distributed to members.

7. The cooperative wholesale business appears to have been abandoned.

8. An attempt is being made to link the individual societies through the medium of district leagues. In 1925 four were in existence.

The Bureau gained its information via the questionnaire method. Of the 2066 societies known to be in existence in 1925, 708 reported. The following shows the existence of the societies by geographical divisions:

PER CENT OF TOTAL COOPERATORS
[*By geographical divisions*]

	Consumers' societies	*Credit and workers' societies*
New England	18.9	48.2
Middle Atlantic	10.3	45.4
East North Central	29.0	1.5
West North Central	27.2	.5
South Atlantic	1.0	1.9
East South Central	.5	.7
West South Central	1.3	.9
Mountain	.8	...
Pacific	11.1	.9
Total	100.0	100 0

The accompanying tables extracted from the report throw light on the movement.

NUMBER OF COÖPERATORS IN EACH GEOGRAPHICAL DIVISION AND RATE PER 10,000 OF POPULATION

Geographical division	*Estimated population, July 1, 1923*	*Coöperative membership, 1925*					
		Consumers' societies		*Credit and workers' societies*		*Total*	
		Members	*Rate per 10,000 of population*	*Members*	*Rate per 10,000 of population*	*Members*	*Rate per 10,000 of population*
New England	7,707,979	26,605	34.5	53,008	68.8	79,613	103.3
Middle Atlantic	23,322,950	14,507	6.2	49,902	21.4	64,409	27.6
East North Central	22,638,175	40,790	18.0	1,686	.7	42,476	18.7
West North Central	12,842,762	38,237	29.8	580	.5	38,817	30.2
South Atlantic	14,599,139	1,388	1.0	2,129	1.5	3,517	2.4
East South Central	9,069,924	657	.7	749	.8	1,406	1.6
West South Central	10,767,742	1,819	1.7	936	.9	2,755	2.6
Mountain	3,591,006	1,169	3.3	40	.1	1,209	3.4
Pacific	6,062,421	15,625	25.8	952	1.6	16,577	27.3
Total	110,602,098	140,797	12.7	109,982	9.9	250,779	22.1

YEARS OF OPERATION OF COÖPERATIVE SOCIETIES AND COÖPERATIVE MEMBERSHIP IN 1925, BY TYPE OF SOCIETY

Type of society	*Number of societies reporting*	*Average period in operation*		*Membership*		*Estimated total membership based on societies reporting*
		Yrs.	*Mos.*	*Number of members*	*Average per society*	
Credit	176	5	6	107,779	612	173,800
Workers' productive	21	10	0	2,488	116	4,500
Consumers':						
Housing	32	3	2	1,805	56	2,300
Other	479	10	0	139,301	310	527,900
Total	708	8	7	251,323	355	708,500

TOTAL AND AVERAGE SHARE CAPITAL, RESERVES, NET TRADING PROFIT, AND PATRONAGE REBATE, 1925, BY TYPE OF SOCIETY

Type of society	*Paid-in share capital*		*Reserve*		*Net trading profit*		*Patronage dividend*	
	Amount	*Average per society*	*Amount*	*Average per society*	*Amount*	*Average per society*	*Amount*	*Average per society*
Credit	$10,706,099	$62,609	$973,873	$6,283	(a)	(a)	$458,184	$3,394
Workers' productive	1,025,509	51,275	653,590 [b]	72,621 [b]	$248,804	$20,734	109,470	27,368
Consumers':								
Housing	827,850	45,992	....	.....	....	......	......	......
Other	6,871,230	17,264	2,435,178	9,475	1,608,699	5,075	753,791	4,568
Total	19,430,688	82,011	4,062,641	9,650	1,857,503	5,646	1,321,445	4,347

[a] Data not available.

[b] Surplus and reserve.

Workers' Productive Societies. The Bureau of Labor was able to reach 21 out of the total 39 societies known to be functioning. Some of these societies partake more of the nature of trade-union or joint-stock enterprises, and, unlike the regular cooperatives, have employees who do not share in the profits. These societies average 10 years of existence. In the 21 societies reporting, there were 2438 shareholders. Of these, 465 were employed in the factories operated by the societies, while these employed 807 employees who were non-shareholders and therefore did not participate in the profits. The 21 societies reporting had a paid-in share capital of $1,015,509 with a surplus and reserve of $653,590. It is interesting to note the activities engaged in. There were 4 cigar factories, 3 fish canning and sales societies, 2 window glass factories, 2 laundries, 6 shingle mills, 1 pottery, 2 shoe factories, 1 veneer factory. Of these, 19 reported a business done of $4,533,329 in 1925. There was no advance, in view of the fact that in 1920, 9 societies reported a business of $3,834,692.

Consumers' Societies. The accompanying tables indicate the status of this type of the movement in 1925. There was a total of 479 societies reporting, of which the retail-store societies were 431 or 90 per cent of the total. For the 423 retail-store societies, the average life has been 10 years and 1 month, while the other societies have had a life of 6 years and 4 months as the average. See HORTICULTURE.

YEARS OF OPERATION OF CONSUMERS' SOCIETIES

	Retail stores	*Other societies*
Less than 1 year	1	..
1 year and under 3 years	13	8
3 and under 5 years	22	3
5 and under 10 years	235	27
10 and under 25 years	130	10
25 years and over	22	..
Total	423	48

MEMBERSHIP OF ALL TYPES OF CONSUMERS' SOCIETIES REPORTING IN 1925

State	*Number of members*
Alabama	150
Alaska	309
Arkansas	235
California	9,044
Colorado	160
Connecticut	3,176
Idaho	274
Illinois	9,559
Indiana	643
Iowa	3,051
Kansas	5,245
Kentucky	461
Maine	1,204
Massachusetts	21,676
Michigan	8,873
Minnesota	23,889
Missouri	458
Montana	195
Nebraska	3,028
New Hampshire	285
New Jersey	4,732
New York	6,577
North Carolina	124
North Dakota	1,400
Ohio	13,494
Oklahoma	727
Oregon	3,030
Pennsylvania	1,498
Rhode Island	264
South Dakota	1,166
Tennessee	46
Texas	857
Virginia	215
Washington	3,551
West Virginia	1,049
Wisconsin	8,116
Wyoming	540
Total	139,301

TOTAL AND AVERAGE MEMBERSHIP OF CONSUMERS' COÖPERATIVE SOCIETIES IN 1925

Type of society	*Number of societies reporting*	*Membership*	
		Total	*Average per society*
Retail store societies dealing in:			
General merchandise	310	55,431	179
Groceries	47	11,129	237
Groceries and meats	38	21,399	563
Students' supplies	9	30,848	3,428
Other commodities	5	953	191
Total	409	119,760	293
Gasoline filling stations	7	3,615	516
Bakeries	9	4,834	537
Laundries	2	263	132
Boarding houses	11	1,578	143
Restaurants	5	2,733	547
Water supply societies	2	76	38
Miscellaneous societies	5	6,442	1,288
Grand total	450	139,301	310

COMPARISON OF BUSINESS DONE BY CONSUMERS' SOCIETIES EACH YEAR, 1920 AND 1925

Type of society	*1920*		*1925*	
	Number of societies	*Amount of business*	*Number of societies*	*Amount of business*
Retail store societies handling:				
General merchandise	204	$24,097,722	322	$29,610,246
Groceries	30	2,363,523	49	3,487,979
Groceries and meats	26	2,495,261	36	4,346,690
Students' supplies	7	1,079,981	11	2,899,626
Other commodities	5	326,621	8	401,069
Total	272	30,363,108	426	40,745,610
Wholesale societies	3	3,333,132	8	2,459,521
Gasoline filling stations	..	......	9	742,473
Bakeries	6	571,434	9	1,189,737
Laundries	1	16,042	2	87,786
Boarding houses	3	145,051	10	150,858
Restaurants	3	112,707	5	679,110
Water supply societies	1	589	2	1,559
Miscellaneous	3	309,710	5	3,704,139
Grand total	292	34,851,773	471	49,710,788

COÖPERATIVE MARKETING. See AGRICULTURE, U. S. DEPARTMENT OF.

COPPER. The outstanding features of the American copper industry in 1927, according to the U. S. Bureau of Mines, Department of Commerce, were a relatively maintained production, a decrease in imports of refined copper, an increase in exports of metallic copper, a decrease in total stocks and a falling off in domestic withdrawals.

The average quoted price of the metal for the year, according to the American Metal Market, was 13 cents a pound, with a marked advance during the last two months following a depression in mid year. Stocks of refined copper available for consumption were 22,000,000 pounds larger at the beginning of 1927 than at the beginning of 1926. The small drop in refined copper output and the decrease in imports of refined copper made less copper available for consumption and, together with the increase in refined copper exported, entirely offset the decrease in domestic withdrawals. Therefore, the increase in stocks of refined copper in 1927 was relatively the same as in 1926, approximately 22,000,000 pounds.

The smelter production of copper from domestic ores in 1927 as determined by the Bureau of Mines from reports of the smelters showing actual production for 11 months and estimated production for December, was 1,696,000,000 pounds, compared with 1,740,000,000 pounds in 1926. The 1927 production was 2.5 per cent less than that of 1926, but, with the exception of 1926, was the largest peace-time production on record. The estimated smelter production from domestic ores for December, as reported by the smelters, was 145,000,000 pounds which was 4,000,000 pounds higher than the average for the 11 months preceding.

The production of new refined copper from domestic sources, determined in the same manner as smelter production, was about 1,739,000,000 pounds, compared with 1,731,000,000 pounds in 1926. In 1927 the production of new refined copper from domestic and foreign sources amounted to about 2,318,000,000 pounds, compared with 2,322,485,000 pounds in 1926, a decrease of nearly 4,500,000 pounds or .2 per cent. The production of secondary copper by primary refineries decreased from 225,118,000 pounds to about 216,000,000 pounds in 1927, or 9,000,000 pounds, so that the total primary and secondary output of copper by the refineries was a little over .5 per cent lower in 1927 than in 1926, being about 2,534,000,000 pounds compared with 2,547,603,000 pounds.

Refineries reported that at the end of 1927 approximately 168,000,000 pounds of refined copper was in stock, an increase from 146,000,000 pounds at the end of 1926. It was estimated that stocks of blister copper at the smelters, in transit to refineries, and at refineries, and materials in process of refining, would be about 380,000,000 pounds on December 31, compared with 455,000,000 pounds at the end of 1926, a decrease of 75,000,000 pounds. Therefore, a decrease of 53,000,000 pounds in total smelter and refinery stocks was indicated.

The quantity of new refined copper withdrawn on domestic account during the year was about 1,442,000,000 pounds, compared with 1,570,000,000 pounds in 1926, a decrease of 128,000,000 pounds or approximately 8 per cent. However, domestic withdrawals in 1927, with the exception of those in 1926, were larger than those of any other peace-time year. The method of calculating domestic withdrawals is shown by the accompanying table.

NEW REFINED COPPER WITHDRAWN FROM TOTAL YEAR'S SUPPLY ON DOMESTIC ACCOUNT, 1926–1927, IN POUNDS

	1926	*1927*
Refinery production of new copper from domestic sources	1,731,000,000	1,739,000,000
Refinery production of new copper from foreign sources	591,000,000	579,000,000
Imports of refined copper (December, 1927, estimated)	171,000,000	109,000,000
Stocks of new refined copper on January 1	124,000,000	146,000,000
Total	2,617,000,000	2,573,000,000
Exports of refined copper (ingots, bars, rods, or other forms, December, 1927, estimated)	901,000,000	963,000,000
Stocks December 31	146,000,000	168,000,000
Total	1,047,000,000	1,131,000,000
Total withdrawn on domestic account	1,570,000,000	1,442,000,000

The imports of copper into the United States in 1927 amounted to 718,331,990 pounds valued at $84,965,364, as compared with 779,441,797 pounds valued at $99,741,809 in 1926. During 1927 the United States imported 168,914,641 pounds of copper ores, concentrates and matte, valued at $18,997,355, as compared with 153,594,877 pounds valued at $19,065,075 in 1926. These imports included copper ores amounting to 99,328,373 pounds on the basis of copper content, valued at $10,759,637 and concentrates amounting to 68,192,800 pounds valued at $8,106,626. Canada, Chile, Mexico and Cuba, in the order named, supplied this material. Unrefined copper consisting of black, blister and converter copper in pigs, bars etc., was imported to the amount of 438,594,013 pounds, valued at $51,954,453, as compared with 443,798,297 pounds valued at $56,101,041 in 1926. This was received in 1927 from the following countries: Peru, 101,870,992 pounds; Africa, 117,189,443 pounds; Mexico, 82,974,970 pounds; and Chile 63,697,974 pounds. Refined copper to the amount of 103,279,082 pounds valued at $13,105,086 was imported, of which 100,839,354 pounds valued at $12,785,696 was received from Chile in 1927, and 2,439,728 pounds, valued at $319,390 from other countries. This was a reduced amount from 1926 when Chile furnished 166,872,641 pounds of copper that were valued at $22,884,487.

In 1927 the United States exported refined copper in ingots, bars and other forms, to the amount of 922,466,143 pounds, valued at $125,368,316, as compared with 856,124,528 pounds, valued at $121,231,224 in 1926. Germany was the largest consumer in 1927, taking 221,841,647 pounds as compared with 153,360,480 pounds in 1926. The United Kingdom took 182,565,499 pounds as compared with 180,320,237 in 1926, while France reduced its consumption, taking 111,958,106 pounds in 1927 as compared with 175,150,816 pounds in 1926.

In 1927 there were exported copper rods to the amount of 58,403,112 pounds, valued at $8,849,487, copper wire amounting to 10,445,569 pounds valued at $1,710,151, insulated copper wire and cable, 22,555,445 pounds, valued at $5,171,579, and other forms, including scrap, 92,036,150 pounds of copper that were valued at $8,774,684.

The world's production of copper in 1926 made a record and was estimated at 1,628,000 tons, of which the United States produced 54 per cent of the total, Chile 14 per cent, and Africa, principally Belgian Congo, 7 per cent, these major producing countries accounting for three-quarters of the world's output. For 1927 it was estimated that the production would be slightly larger.

In South America considerable development was under way. Here the copper production in 1926 was about 274,000 tons or more than three times that of 1913. Most of the large plants were being improved in 1927.

While the Chile Copper Co., the leading producer of Chile, was equipped in 1927 so that it could turn out copper at the rate of 375,000,000 pounds per annum, this amount was not approached in 1927, when the production was about 220,000,000 pounds. This company was constantly improving its plant and equipment, recent improvements representing an investment of $17,000,000. The Andes Copper Mining Company was equipped for more efficient handling of ores, as were other companies in Chile. Chile's copper production for 1927 was estimated at about 520,000,000 pounds.

The mines and plant of the Union Minière du Haut-Katanga were being extended during the year and a new reverberatory furnace plant was constructed at Panda while additional leaching equipment was being supplied. This construction work caused the transfer of mine labor to building so that the Union Minière was producing about 90,000 tons of copper. It was anticipated that with the new furnace in operation an output of 120,000 tons could be secured which the new leaching plant would increase to 150,000 tons per annum. During the year active work was done towards the completion of the Bas Congo and Lobito Bay Railway which would make possible the exploitation of the western group of mines, including the Mussonoi.

See also CHEMISTRY, INDUSTRIAL; METALLURGY.

COPYRIGHT. Registrations for the fiscal year 1926–27, according to the report of the U. S. Register of Copyrights, numbered 184,000, as compared with 177,635 for the preceding year. Of these 77,136 were classed as books, but included pamphlets, leaflets, and contributions to periodicals, those printed in the United States numbering 72,003, those printed abroad in a foreign language, 3,777, while the remainder, 1356, were English books registered for ad interim copyright. The chief classes of the remaining registrations, in order of numerical importance, were: Periodicals, 41,475; musical compositions, 25,282; prints and pictorial illustrations, 14,833; photographs, 7415; dramatic or dramatico-musical compositions, 4475; works of art, including models or designs, 2575; maps, 2677; drawings or plastic works of a scientific or technical character, 1229; and motion picture photoplays, 4475. The renewals numbered 4686, as compared with 4029 in the preceding year. The fees paid during the year amounted to $184,727.60. The total number of articles deposited from July 1, 1897, to June 30, 1927, was 6,303,639.

The gross receipts of the Register's office for the fiscal year were $191,376.16; the total expenditure for salaries, $165,552.16; and for supplies, $1057.72. The year's business showed a substantial increase over that of 1926, which was the largest in the history of the office up to that time.

No copyright legislation was enacted during the fiscal year, except the Act of July 3, 1926, permitting copyright for "works printed or produced in the United States" by other processes than typesetting, photo-engraving or lithographing. Two proclamations were issued during the year, namely, in behalf of citizens of Poland, Feb. 14, 1927, and Czechoslovakia, Apr. 27, 1927. In both cases protection with respect to mechanical reproduction of music under Sec. 1 e of the Copyright Act of 1909 is included.

CORN. Reports on corn production in 1927, made by 15 countries to the International Institute of Agriculture, Rome, indicated a total yield of 3,143,960,000 bushels as compared with 3,190,423,000 bushels produced by these countries the year before. The crop of 1927 was about 1½ per cent under the production of 1926 and about 3½ per cent below the average yield for the five years 1921–1925. The acreage for 1927 reported by these countries, 121,598,000 acres, was .5 per cent below their acreage for 1926 and 1.8 per cent below the average acreage of the five-year period mentioned. The production in 1927 reported by some of the leading corn growing countries was as follows: Rumania 145,475,000 bushels, Italy 85,556,000 bushels, Jugo-Slavia 76,629,000 bushels, Hungary 60,298,000 bushels, Spain 24,749,000 bushels, France 21,511,000 bushels, and Bulgaria 20,613,000 bushels. The estimate for Italy does not include the production in that country of early corn known as "cinquantino," of which about 4,280,000 bushels were produced in 1926. For the crop year 1926–27 the more important corn producing countries in the southern hemisphere reported the following yields: Argentina 320,853,000 bushels, Brazil 164,336,000 bushels, Java and Madura 82,280,000 bushels, and the Union of South Africa 68,193,000 bushels. The Canadian yield of 1927 was estimated at 4,355,000 bushels, as compared with 7,815,000 bushels in 1926 and the average of 12,974,000 bushels for the five years 1921–1925. The corn acreage in Canada showed a marked reduction from 293,000 acres, the average for the five-year period 1921–1925, to 210,000 acres in 1926 and 132,000 acres in 1927. The important factor in this reduction was the spread of the European corn borer in the Province of Ontario, where most of the corn is grown.

The corn production of the United States, according to estimates made public by the Department of Agriculture on Dec. 19, 1927, was 2,786,288,000 bushels on 98,914,000 acres, or at the rate of 28.2 bushels per acre. The preceding year the total yield was 2,692,217,000 bushels, the area 99,713,000 acres, and the average acre yield 27 bushels. The average farm price Dec. 1, 1927, was 72.3 cents per bushel, which was 8.1 cents above the corresponding price the year before. The total value of the crops for the two years at these prices was $2,014,725,000 in 1927 and $1,729,457,000 in 1926. The yields in the highest producing states in 1927 were reported as follows: Iowa 399,566,000 bushels, Nebraska 291,446,000 bushels, Illinois 254,070,000 bushels, Kansas 176,910,000 bushels, South Dakota 134,995,000 bushels, Indiana 132,458,000 bushels, and Minnesota 127,246,000 bushels. The highest acreages reported were as follows: Iowa 10,947,000 acres, Nebraska 8,805,000 acres, Illinois 8,469,000 acres, Missouri 5,953,000 acres, and Kansas 5,897,000 acres. The average yield per acre ranged from 14 bushels in Georgia to 44 bushels in Maryland. In Massachusetts and New Hampshire the average yield per acre was 41 bushels, and in New Jersey 40 bushels, while in all other states it was under 40 bushels.

In the different states the average farm price per bushel on Dec. 1, 1927, ranged from 57 cents in South Dakota to $1.20 in Massachusetts, Rhode Island and Connecticut. These prices were generally highest in the Atlantic and Pacific Coast and the Southwestern States.

There was an increase of only 3 per cent in the corn production of the country as a whole over the yield of 1926, although in the Western Corn Belt States the increase was 25 per cent, in the Rocky Mountain and Pacific Coast States 45 per cent, and in the 11 Cotton States 3 per cent over last year's large yield. These increases were largely offset by decrease of 22 per cent in the Eastern Corn Belt States, and of 10 per cent in the North Atlantic States. About 69 per cent of the 1927 crop was produced in the 12 Corn Belt States, as compared with 68 per cent the year before. Although the crop of 1927 was late in maturing and remained a great uncertainty during the critical fall period, weather conditions—including the absence of injurious frost—were so favorable that the crop ripened quite well and in quality was better than the crop of 1926, and was only 5½ points below the ten-year average. It was estimated that about 75.2 per cent of the crop was of merchantable quality, as compared with 72.6 per cent in 1926 and 80.7 per cent of the average for the past ten years. The total supply of corn on Nov. 1, 1927, including the year's crop and the stocks on hand placed at about 111,000,000 bushels, was estimated at approximately 2,885,000,000 bushels, which, with the exception of 1924 and 1926, was the smallest supply at the beginning of the crop year since 1919.

Although the United States produces about two-thirds of the world's corn crop, exports from the country during the past five years have been relatively small. For the year ended June 30, 1927, the exports were 17,563,000 bushels of grain, 564,000 barrels of corn meal, and 9,446,000 pounds of corn products for table use. The imports of the same period amounted to 1,098,000 bushels of grain. The home market is influenced by the supplies available in Europe and Argentina. During the calendar year 1927 Argentine corn, which largely goes to meet European requirements, was in position at times to compete in United States markets and about 2,657,000 bushels entered the country during the nine months ending with September, the greater portion arriving from July to September when domestic prices were relatively high.

The results of studies made by the U. S. Department of Agriculture pointed out that in the United States the average yield per acre of corn had increased 18 per cent since 1885, and the average annual production about 440,000,000 bushels as the result of this higher acre yield. During this period the average yields increased from six to ten bushels in the East North Central States and from nine to fourteen bushels in the northern section of the South Atlantic States. The cost of producing corn in 1926, based on 5120 reports, was $23.10 per acre and 70 cents per bushel, the range per acre being from $18.28 in the West North Central States to $42.70 in the North Atlantic States, and the range per bushel from 61 cents in the East North Central States to 93 cents in the Rocky Mountain and Western States. An outstanding activity in connection with corn culture during the year was the European corn borer control campaign vigorously conducted in the infested areas. (See Entomology, Economic.) Reduced yields resulting from borer injury were regarded as largely due to weakened plants and premature ripening rather than to destruction of the stalks. The control of the corn borer, through the extra labor required in growing corn, raises the cost of production and introduces a new problem into the methods of farm management.

In the interstate husking contest held near Blue Earth, Minnesota, Fred Stanek of Iowa took the championship for the third time. See Agriculture.

For use of corn stalks, see Chemistry, Industrial.

CORN BORER. See Agriculture; Agricultural Extension Work; Corn; Entomology, Economic.

CORNELL UNIVERSITY. A non-sectarian, coeducational institution of higher education at Ithaca, N. Y.; founded in 1865. There were 5355 students enrolled in the autumn session of 1927, distributed as follows: graduate school, 630; college of arts and sciences, 1898; law, 175; medicine, 263; architecture, 182; engineering, 1068; veterinary medicine, 107; agriculture, 604; home economics, 451. Of these students 1271 were women. For the 1927 summer session the registration was 2053. The faculty, composed of 1148 members, had 273 professors, 207 assistant professors, 12 lecturers, 416 instructors and 240 assistants. The productive funds of the institution on June 30, 1927, were $20,715,668. The income applicable to current expenses of the fiscal year was $7,083,778, including $2,200,000 of State and $300,000 of Federal appropriations. Gifts amounting to $1,008,321 were received in the year 1926–27. The lands and buildings were valued at $10,256,706 and the equipment at $3,897,520. The library contained 780,000 volumes.

By agreement of the University and New York Hospital, the hospital and the Cornell Medical College were organically united as a single institution, to occupy jointly a new building to be erected at an estimated cost of $11,000,000 between 68th and 70th Streets, overlooking the East River, New York City, their joint endowment to be augmented by a large appropriation of the General Education Board and by generous legacies provided by the will of Payne Whitney; Dr. G. Canby Robinson, of Vanderbilt University, was appointed director of the unified enterprise. The Charles Lathrop Pack Forestry Trust gave $130,000 to endow a research professorship of forest soils; the heirs of Mathias H. Arnot of Elmira, N. Y., gave a forest tract of 1700 acres near the University for the use of the department of forestry. The George Fisher Baker non-resident lecturers in chemistry were Prof. A. V. Hill, of the University of London, and Prof. Paul Walden of the University of Rostock. The Messenger lecturer on the evolution of civilization was Prof. H. J. C. Grierson of the University of Edinburgh. Prof. J. L. Brierly of Oxford University lectured on international law on the Jacob H. Schiff Foundation. Appointments to the faculty included those of Allan Nevins of the New York *World* editorial staff, to be professor of American history, and G. W. Cunningham, of the University of Texas, to be professor of philosophy. F. B. Morrison, of the University of Wisconsin, succeeded R. W. Thatcher, director of the experiment stations, who resigned to become president of the Massachusetts Agricultural College. The faculty lost by death the following professors: Ernest Albee, philosophy; George P. Bristol, Greek, emeritus; D. J. Crosby, agriculture; E. B.

Titchener, psychology; C. E. Nammack, W. G. Thompson, and R. G. Reese, medicine; W. R. Orndorff, chemistry, and L. A. Fuertes, lecturer in ornithology. President of the university, Livingston Farrand, LL.D.

COSTA RICA, kō′sta rēkä. A republic of Central America lying between Nicaragua and Panama, and bounded by the Caribbean Sea on the east and the Pacific Ocean on the west. Capital, San José.

AREA AND POPULATION. The area is estimated at 23,000 square miles. On May 11, 1927, for the first time in 35 years, a general population census was begun in Costa Rica, almost 800 persons being employed in the work. The last general population census made in 1892 showed the population of Costa Rica at that time to be 243,205. A preliminary report of the census published in the autumn stated the population to be 476,069, an increase of 232,864 or 95 per cent since 1892. At the same time an immigration project presented by Dr. J. S. Kammienny, delegate of the Polish Committee for the Promotion of Immigration, was under study by the Costa Rican government. The plan provided for the immigration of not less than 250 Polish-German families, totaling about 1060 individuals, to form a colony between the Zapote River (Liberia) and Culebra Bay, where they would engage in agricultural pursuits. Two Italian specialists were also in Costa Rica studying the possibility of establishing an agricultural colony of 100 Italians who are especially interested in coffee production and silk-worm culture.

In 1925 the movement of population was: Births, 19,960; deaths, 12,544; marriages, 3012. In the same year the immigrants numbered 5983 and the emigrants, 5318. The populations of the larger cities as estimated in 1924 were as follows: San José, 42,112 (with suburbs, 55,206); Alajuela, 13,737: Cartago, 19,376; Heredia, 13,842; Liberia, 2778; Limon, 11,989; and Puntarenas, 5867.

EDUCATION. Elementary education is free and compulsory, and the elementary schools are under local councils, but subventioned by the central government. The report of the Department of Public Education for the year 1925 gives the following school statistics: Number of schools in session during the year, 451; number of students enrolled, 38,822; average attendance, 33,249; total number of teachers employed, 1447—313 of whom were men and 1134 women. For secondary education there is a lyceum for boys and a college for girls. There are colleges at Cartago, Alajuela, and Heredia, together with professional schools of medicine, law, pharmacy, and dentistry.

PRODUCTION. Agriculture is the chief occupation, but there are large areas not yet cleared that contain valuable cabinet woods. Coffee and bananas are the chief agricultural products. According to the report of the Director-General of Statistics, a total of 273,520 bags of coffee, weighing 18,249,045 kilograms, was exported from Costa Rica in 1925–26. The value of the exports was 42,495,000 colones, of which 27,847,799 colones went to Great Britain. The next industry of importance is gold and silver mining, which is carried on on the Pacific slope. There are also deposits of manganese ore near the Pacific.

COMMERCE. The year 1926 was one of continued prosperity for Costa Rica. Her principal products—coffee, bananas, and cacao—were exported in increasing quantities. Prices received by banana planters remained the same, but those received by the producers of the other two crops were better than those of 1925, that for coffee being the highest recorded. The foreign trade of the country in 1926 was: Exports, $18,962,180; imports, $13,825,977. This was the most favorable trade balance ever recorded by the country. According to statistics quoted by President Jimenez in his message to Congress on May 1, 1927, the total value of the foreign trade during 1926 was 131,152,627 colones, 75,848,719 colones representing exports and 55,303,908 colones imports. The chief articles exported were as follows:

Article	*Value in colones*
Coffee	42,495,877
Bananas	25,682,730
Cacao	3,297,423
Gold, silver, and minerals	2,082,034
Other articles	2,290,655
Total	75,848,719

FINANCE. The total receipts of the Costa Rican government during 1926 were announced to have been 27,417,349 colones, while the expenditures were 22,611,450 colones. The balance of 4,805,899 colones was used to reduce the national debt, to pay municipal debts to the amount of 1,000,000 colones, and to satisfy claims against the government. The budget for 1926 had estimated the receipts at 24,962,933 colones and the expenditures at 23,735,782 colones. On May 12, 1927, the emission of 8 per cent gold bonds to the amount of 10,000,000 colones was authorized by the government. This was the first of a series of bond issues covering a loan for public works as provided for in a decree of Dec. 24, 1926, the total of which is not to exceed 25,000,000 colones. Of the present loan, 2,000,000 colones are to be used for the construction and repair of roads in those provinces not now linked with the main highway system.

COMMUNICATIONS. In 1925 there entered the ports of the republic 671 ships of 1,199,385 tons, and cleared 671 ships of the same tonnage. The length of railway mileage is 413 miles, of which 81 miles are state owned. Indicative of the growing number of passengers and volume of freight being transported by the railways of Costa Rica each year are the following figures taken from the auditors' annual report of the Pacific Railway, one of the important roads in operation in that country:

Year	*Receipts Colones*	*Expenditures Colones*	*Net receipts Colones*
1923	1,808,244	1,701,404	106,840
1924	1,755,896	1,535,796	220,190
1925	2,132,377	1,715,108	417,268
1926	2,233,578	1,781,176	452,402

GOVERNMENT. The executive power is vested in a president who is elected for four years and who carries on his administration through six secretaries of state appointed by him and responsible to him; legislative power in a chamber of representatives called the Constitutional Congress with 43 deputies, elected for four years, one-half retiring every two years. President in 1927, Don Ricardo Jimenez, elected on

Dec. 7, 1923; assumed office May 8, 1924, for a period of four years.

COTTON. The cotton crop of the United States for 1927 was estimated by the Crop Reporting Board of the U. S. Department of Agriculture on December 8, 1927, at 12,789,000 bales of 500 lbs. gross weight. This was 5,188,000 bales below the crop of 1926 and 732,000 bales below the 5-year average, 1922–1926. The area planted to cotton was reported on July 1 as 42,112,000 acres, a 15 per cent reduction from the previous year. There was abandoned before harvest 4.6 per cent of the area planted. The estimated yield of lint cotton per acre for 1927 was 152.3 lbs. as compared with 182.6 lbs. in 1926 and 155.8 lbs. for the 5-year period, 1922–1926. There had been ginned to Dec. 13, 1927, according to the Bureau of the Census, 12,071,799 running bales. The total crop would depend upon the effect of various climatic and other factors on the portion still to be harvested.

The world's cotton crop for 1927 was believed to be less than that of 1926. The total area devoted to the crop was reported at 65,180,000 acres, exclusive of China, as compared with 73,680,000 acres in 1926. The International Institute of Agriculture reported on Dec. 13, 1927, that the cotton production of both Egypt and India would be considerably below normal. The crop of Egypt was estimated at 1,251,900 bales, a reduction of 16 per cent. Only a portion of India was reported upon. The crop of the Punjab was estimated at 524,700 bales and of the Madras Presidency at 282,340, both below the average of the last five years.

The world's production of cotton, exclusive of linters, in 1926 was about 28,000,000 bales. The principal producing countries and their crops were: United States, 17,977,000 bales; India, 4,973,000; Egypt, 1,600,000; Russia, 850,000; China, 1,667,000; Brazil, 600,000; Peru, 200,000; Mexico, 396,000; and the British Empire, exclusive of India, 312,000 bales.

The accompanying table shows, by States, the cotton crop of the United States for 1926, as reported by the Bureau of the Census, the estimated crop for 1927, and the amount ginned to Dec. 13, 1927.

States	*Crop 1926*	*Estimated crop 1927*	*Reported ginned December 13, 1927*
	500-lb. bales	*500-lb. bales*	*Running bales*
United States	17,910,258	12,789,000	12,071,799
Alabama	1,497,197	1,200,000	1,163,272
Arizona	122,700	93,000	67,262
Arkansas	1,545,659	980,000	890,063
California	130,935	94,000	68,085
Florida	31,952	17,000	17,174
Georgia	1,498,061	1,100,000	1,095,279
Louisiana	828,020	545,000	534,915
Mississippi	1,888,952	1,340,000	1,311,980
Missouri	218,152	104,000	85,716
New Mexico	70,866	70,000	60,286
North Carolina .	1,204,496	857,000	824,448
Oklahoma	1,759,895	990,000	918,496
South Carolina .	997,131	735,000	717.092
Tennessee	450,520	345,000	318,984
Texas	5,609,301	4,280,000	3,972,584
Virginia	50,545	32,000	26,548
All others	15,876	7,000	4,609

The table includes 487,401 round bales, which are counted as half bales, and 17,660 bales of American grown Egyptian cotton. The crop of Lower California, which is marketed quite largely through California, is estimated at 50,000 bales, but this sum is not included in the figures for California or the totals for the United States.

In addition to the lint production during the year ended July 31, 1927, there were crushed by oil mills in the United States 6,301,911 tons of seed. Among the products produced from the seed were 1,037,084 bales of linters, 1,852,408 tons of hulls, 2,838,104 tons of cake and meal, and 1,886,836,168 lbs. of oil, besides other products.

Exports of cotton and linters for the year ended July 31, 1927, amounted to 11,183,938 bales, and the consumption by domestic mills during the same period was 7,202,734 bales. The principal exports were, to the United Kingdom, 2,573,658 bales; France, 1,023,977; Germany, 2,883,301; Japan, 1,615,755; and Italy, 782,083 bales. During the 12 months importations of 400,993 bales were reported, of which 321,767 weie from Egypt; 93,272 from Mexico; 20,877 from Peru; 33,466 from China; and 18,892 from India. Of the amount used by American mills the greatest quantity was consumed by mills in the cotton growing states, 5,194,160 bales as constrasted with 2,008,564 bales in the New England and other States.

The cotton situation in the United States during the year was remarkable in a number of respects. Following the low prices of 1926 concerted efforts were made to secure a reduction in the area to be planted in the spring of 1927. There was quite a general response to this appeal which, combined with boll weevil and other insect damage, unfavorable weather in important areas, and the Mississippi Valley flood, resulted in a reduction of nearly one-third in the final crop. However, based on prices of Dec. 19, 1927, the farm value of lint and seed was $1,462,571,000, which exceeded the value of the 1926 crop by more than $330,000,000.

There continued to be quite an extension of the cotton-growing industry in western Texas and Oklahoma, and methods have been adopted that may seriously affect cotton production in some of the older portions of the Cotton Belt. Virgin land, large fields, and the extensive use of machinery, combined with freedom from boll weevil, have greatly reduced the costs of producing the crop. By the newer methods one man can plant and care for 75 to 150 acres of cotton as compared with 10 to 20 acres in the older regions. Snapping the bolls and "sledding" have greatly reduced the cost of harvesting the crop. The use of sleds, or strippers, by which the bolls are stripped from the plant, and improved ginning methods make it possible for one man to harvest as much cotton in a day as would be hand-picked by eight or 10 men. While the machinery used in this method of harvesting is somewhat crude its further development cannot fail to have an important part in the further development of cotton growing in the United States.

A conference was held in Washington, D. C., on Mar. 14, 1927, for the purpose of approving copies of the universal standards of grade and color for American cotton for the use of the U. S. Department of Agriculture and European exchanges during the two-year period beginning Aug. 1, 1927. Official staple standards were adopted for the United States, but they were not accepted abroad. These standards are the required basis for transactions in American cotton sold in interstate and foreign commerce on standard description. Eight standard grades for cotton linters were established on Aug. 1, 1926, by the Department of Agriculture, and the Interstate Cotton Seed Crushers' Association adopted trading rules based upon the use of these standards.

Attention continued to be given to various biological factors concerned in cotton production in the United States. The cotton root rot was becoming of increasing importance in the southwestern part of the country, and Congress provided a fund for its investigation. The agricultural experiment station of Texas also undertook an extensive study of this disease and means for its control. The boll weevil, after a period of partial subsidence that led many cotton growers to relax in their efforts for control, appeared after hibernation in greater numbers than in any year since 1923, and conditions for the multiplication of the weevils were favorable throughout much of the area. The cotton flea hopper, that made its appearance in destructive numbers in 1926, continued to be a problem in many localities. Fairly good control has been secured in some instances by dusting the cotton plants with sulphur on bright, hot days. The pink bollworm has apparently become a fixture in the Rio Grande Valley in New Mexico and adjacent Texas, and it was found during the year in southwestern New Mexico and southeastern Arizona. Several formerly infested regions in Texas and Louisiana are no longer regarded as sources of danger, no infestation having been found in these regions since 1921. The definite discovery that the Thurberia boll weevil in Arizona would attack cotton led to considerable activity for its control through quarantine regulations that included compressing the cotton and heating the seed. Court injunctions in November, 1926, interfered with the activities for control in one locality, but regulations of Texas and California prevented the movement of the cotton out of Arizona. Every effort was being made to prevent the spread of this insect to new areas, as with its capacity to withstand heat it was considered a menace to regions that are not now subject to the common boll weevil by reason of their high temperatures and arid conditions. See Agriculture; Entomology, Economic.

COTTON BOLL WEEVIL, etc., See Entomology, Economic.

COTTONSEED. See Cotton.

COUNCIL-MANAGER PLAN. See Municipal Government.

COUNTY GOVERNMENT. See Municipal Government.

COUNTY HIGHWAYS. See Roads and Highways.

COURT TENNIS. See Racquets.

COWDRAY, Weetman Dickinson Pearson, First Viscount. British capitalist and developer of oil fields, died at Dunecht House, Aberdeenshire, Scotland, May 1. He was born at Shelly Woodhouse, Yorkshire, July 15, 1856, and was educated privately at Harrogate. After a short apprenticeship in the firm of S. Pearson & Company, public utility contractors, founded by his grandfather in 1875, he became a partner and devoted himself to new enterprises in Spain and the United States. In 1889 he went to Mexico, where the firm began a series of important projects having to do with drainage, railways, electric lines, harbors and water works. In this connection Pearson was able to acquire many thousands of acres of rich oil lands, which he proceeded to develop. While so engaged he was in a struggle with American oil interests led by the Standard Oil Company. He was the first to fill oil tankers at sea through pipes. After the War he relinquished his controlling interest in the Mexican oil fields to the Royal Dutch-Shell group. He received a baronetcy in 1894 in recognition of the opening of the Blackwall tunnel under the Thames, which his firm had built. They also were contractors for the extension of Dover harbor and built numerous docks and other harbor works at London, Southampton, Hull and Malta. In the United States the firm of S. Pearson & Company constructed the tunnels under the East River for the Pennsylvania Railroad Company, and in Egypt they built the great dam across the Blue Nile above Khartum. Pearson was active in politics from 1895, when he was elected to represent Colchester in Parliament as a Liberal, having previously failed of election for that constitutency in 1892. In 1910, when he retired from the House of Commons, he was created a baron, taking the title of Lord Cowdray of Midhurst, and in January, 1917, he was created a viscount, in recognition of his supervision of the Gretna Green munition factory, a colossal undertaking. During the War he also built the tank assembly factory at Chateauroux. In 1917 he succeeded Lord Sydenham as chairman of the air board, and was successful in harmoniously coördinating the air forces and increasing the supply of aircraft. When he relinquished the work in November, 1918, after the armistice, there had been a threefold increase in the effective air forces of the British army. Viscount Cowdray was a generous giver to various public objects, including the University College, London, and the League of Nations' Union to which in 1921 he gave £50,000.

COWS. See Dairying. For Feeding of Cows, see Food and Nutrition.

COXE, William Griscom. American marine engineer and shipbuilder, died at Bellevue, Del., July 4. He was born at Reading, Pa., Feb. 25, 1869, and after graduating from the Royal Technical College in Berlin served an apprenticeship as marine engineer with J. & W. Thompson Company of Clyde Bank, Scotland. He was also with the North German Lloyd repair plant at Bremerhaven, and from 1898 to 1904 he was with the William Cramp & Sons Shipbuilding Company of Philadelphia as foreign representative and assistant general superintendent. Leaving the Cramps, he became head of the Harlan & Hollingsworth Corporation, Wilmington, Del., then general manager of the Pusey & Jones plants at Wilmington and at Gloucester, N. J. He was also consulting engineer of the Chester and Bristol plants of the Merchants' Shipbuilding Company and district manager of the United States Emergency Fleet in the Delaware River. From 1917 to 1920 Mr. Coxe was president of the Atlantic Coast Shipbuilding Association and of the Reading Paper Mills Company. During the Spanish-American War he served in the United States navy as a lieutenant, senior grade. He was a member of many engineering and marine societies, and had important financial and commercial relations.

CRAIK, Sir Henry. British educationist and author, died in London, England, March 17. He was born in Glasgow, Scotland, Oct. 18, 1846, and was educated at the High School of that city and at Glasgow University and Balliol College, Oxford, where he took honors in classics and history. He became examiner in the educational department in 1870, and senior examiner in 1878. From 1885 to 1904 he was secretary of the Scotch Educational Department, Whitehall. He was principal of Queen's College, Harley Street, 1911–14. He was honored with a C.B. in 1887 and was created K.C.B. in 1897. In 1926 he was created a baronet, having previously been made privy councillor in 1918. He had the degrees of M.A. from Oxford and LL.D. from Glasgow and St. Andrews Universities. He was a member of Parliament as a Conservative from Glasgow and Aberdeen Universities after 1906, and one of the members for the Scottish universities after the redistribution in 1918. In addition to his official duties he wrote extensively and edited for Macmillan & Company, Ltd., five volumes of *English Prose Selections* (1892–96), and a series in which his own *The State and Education* (1883) appeared. Most characteristic of his work was *A Century of Scottish History* (1901) which treated mainly of the time from the rebellion of 1745 to the disruption of 1843. He also wrote: *Life of Swift* (1882); *Selections from Swift* (1893); *Impressions of India* (1908); and *Life of Edward, First Earl of Clarendon* (1911).

CRANE, Robert Newton. American lawyer in London, died in London, May 6. He was born in Long Branch, N. J., Apr. 1, 1848, and was graduated from Wesleyan University, from which he received the degree of A.M. in 1870. With Richard Watson Gilder he founded the Newark, N. J., *Morning Register* in 1869, and in 1873 he became editor of the *St. Louis Globe-Democrat.* In 1874 he was appointed United States consul at Manchester, England, and served until 1880, when he was admitted to the Missouri bar. In 1881 he was admitted to the bar of the United States Supreme Court. He was chancellor of the diocese of Missouri in 1882, and, going to London, was called to the bar as a barrister of the Middle Temple in 1894, and in 1921 was made King's Counsel, being the first American to enjoy that honor. He represented the United States government on the South African Deportation Claim Commission in 1901, and the Samoan Arbitration Award, 1903–04. He was United States Government Dispatch Agent from 1904. In 1919 he was made a bencher of the Middle Temple. Wesleyan University conferred on him the degree of Doctor of Civil Law in 1921, He was a member of the executive committee of the Society of Comparative Legislation in 1908, and chairman of the London branch of the American Navy League. He was also active in the American Society in London and had an extensive private practice He enjoyed high honors in British Freemasonry.

CRANE, Thomas Frederick. American educator, died at Deland, Fla., December 9. He was born at New York, July 12, 1844, and was educated at Princeton, graduating in 1864 and receiving his A.M. in 1867. He received the Ph.D. degree in 1883, and that of Litt.D. in 1903. Dr. Crane was associated with Cornell University, Ithaca, N. Y., from the time when it opened its doors in 1868 until his retirement from active classroom work in 1909, and was the last surviving member of the original faculty. He was at various times professor of the modern languages, professor of Spanish and Italian, professor of the Romance languages, dean of the faculty, and acting president of the university. He was held in the highest esteem by successive generations of students, who called him, affectionately, "Tee Fee," and conferred on him the title of "The Grand Old Man of Cornell." College songs were written concerning him, and are still chanted affectionately by Cornell alumni. Professor Crane was author or editor of the following: *Italian Popular Tales; The Exempla,* or *Illustrative Stories from the Sermons of Jacques de Vitry; Tableaux de la Révolution Française; Le Romanticisme Français; La Société Française au Dix-Septième Siècle; Chansons Populaires de France;* Boileau's *Les Héros de Roman;* Rotrou's *Saint Genest and Venceslas;* Pez's *Italian Social Customs of the Sixteenth Century;* Pez's *Liber de Miraculis Mariae;* also works on folk lore and Romance literature.

CRAPSEY, The Rev. Algernon Sidney. American author, lecturer and former Protestant Episcopal clergyman, died at Rochester, N. Y., December 31. He was born at Fairmount, Ohio, June 28, 1847, and received a grammar school education; he studied later at St. Stephen's College and the General Theological Seminary, New York. He served for a time in the Union Army in the Civil War. After graduating from the seminary in 1872, in 1873 he entered the priesthood, and in 1874 he became an assistant at Trinity Church, New York City. This position he resigned to become rector of St. Andrew's Church, Rochester, N. Y., and he remained in charge of the latter church for more than twenty-five years. He received the degree of S.T.D. from Hobart College in 1900. In 1904 and 1905 Dr. Crapsey preached a series of sermons in which he denied the doctrines of the virgin birth of Christ and the resurrection and ascension of the literally physical body of Christ, although previously he had avowed his belief in the spiritual verity of the resurrection. The expression of these heterodox views brought about his condemnation by an ecclesiastical court of his diocese, and he was deposed from the ministry of the Protestant Episcopal Church, on Dec. 4, 1906. The trial and condemnation of Dr. Crapsey excited much interest and discussion. The later years of Dr. Crapsey's life were given over largely to writing and to The Brotherhood, an order which he founded in Rochester, N. Y. He lectured also, and was parole officer of New York State in 1914. In an autobiography published in 1924 he called himself "the last of the heretics," but there have been other condemnations for alleged heresy in other churches since his trial, notably that of Bishop William Montgomery Brown in 1925. Dr. Crapsey wrote the following: *The Five Sorrowful Mysteries* (1883); *The Five Joyful Mysteries* (1885); *A Voice in the Wilderness* (1897); *The Disunion of Christendom* (1900); *Sarah Thorne* (1900); *The Greater Love* (1901); *Religion and Politics* (1905); *The Rebirth of Religion* (1907); *The Rise of the Working Class* (1914); *The Ways of the Gods* (1920); *The Last of the Heretics* (1924).

CREAM. See Dairying.

CREED, WIGGINTON ELLIS. American manager of public utilities, died at San Francisco, Cal., August 6. He was born at Fresno, Cal., Feb. 8, 1877. He graduated from the University of California in 1898, having specialized in the study of law. He was admitted to the bar in California and started practice in San Francisco in 1902, becoming a member of the firm of Titus, Wright & Creed. During his law practice he studied public utility administration and banking, and attracted the attention of many important industrialists on the Pacific coast. In 1915 he was selected to adjust the affairs of the People's Water Company, in Oakland, and as a result he became the president of the East Bay Water Company, which was incorporated to supply the district. In July, 1920, he became president of the Pacific Gas & Electric Company. The efficiency of the company became known throughout the entire field of public utilities. In addition to his services to this company, he was president of several other large industrial corporations. He was active in many important movements, especially in the development of water power on the slopes of the Sierra Nevada. He was interested in charitable institutions, and served for eight years as trustee of the California Institution for Deaf and Blind. He served as president of the University of California Alumni, and in that capacity sat on the board of regents of the University of California. In 1921 he was honored with the appointment of Weinstock lecturer at the University of California. Mr. Creed was also a trustee of Mills College.

CRETE. An island in the Mediterranean Sea, ceded to Greece after Aug. 10, 1913. Area, 3327 square miles; population at the census of 1920, 110,746. Capital, Canea, with a population of 37,425, in 1920. See ARCHÆOLOGY.

CRICKET. There were no international cricket matches of importance contested in 1927 and for the second year in succession the Halifax Cup series between the United States and Canada was omitted. A negro team from Bermuda visited New York City during the year, winning six games, losing one and drawing two. The annual match between Oxford and Cambridge was won by the latter and Lancashire captured the English county championship. The Brooklyn Cricket Club for the second successive year won the Metropolitan District League title and the same club carried off the honors in the New York and New Jersey Cricket Association competition. R. A. Wilson and P. B. Green of the Brooklyn Club were the leading batsman and bowler, respectively.

CRIME. To a very important extent, progress was made in this field by the clarification of certain fundamental issues. Experts agreed that while the terms crime and criminals were being bandied about, very little was actually known. There were no crime statistics; there was no classification of crime to permit of the comparison of statistics; there was no knowing whether crime was on the increase or no. At least, there was one thing vitally necessary: the classification and collection of criminal statistics comparable to the present status of vital statistics. The National Crime Commission, in making public this elementary fact, had cleared the air appreciably. Space must be given to the concise summary presented by Prof. Raymond Moley, an outstanding authority, at the Washington conference of the National Crime Commission (of the United States) spoken of below:

> We want to know more than we now know concerning the number of crimes that are reported to public authorities in this country. That is the measure of crime. We want to know what happens to those who are arrested. We want to know what happens to these cases that are thus initiated. We want to know how many drop out in preliminary hearings. We want to know how many drop out in the next stage. Then after we know these few simple facts, we want to cross-reference them and correlate them in order to determine, so far as possible, what degree of efficiency our agencies for the prosecution of criminals are attaining. We want to know more about our prisoners. We want to know more about the operation of parole. We want to know more about the operation of probation. We can not just thoughtlessly discredit these new agencies for correction. We must know more about what they have done.

Some of the discussions during the year were outstanding contributions to the subject. Mention needs be given to the series of articles published in the December *Current History* in which Prof. H. E. Barnes and Dr. George W. Kirchwey wrote illuminatingly. The former, arguing that no statistics could be adduced to indicate crime waves, pointed to some interesting changes in the status of crime. Criminals were younger. They no longer roved in gangs. Our police systems, linked to politics as they are, are inadequate. Our system of criminal jurisprudence is based on the theory of punishment rather than that of treatment. Our system of juries is absurd. The writer suggests a series of reforms which he is quick to admit it would not be easy to have adopted. Professor Barnes argues for: Removing the police from politics and making them more intelligent. The substitution for the jury system of paid experts to pass on the guilt and innocence of the criminal and the nature of his treatment. (See below Governor Smith's suggestion on this point). The elimination of the modern prison which breeds criminals and the emphasis on preventive work like sterilization and habit clinics, as well as the wider extension of probation and the medical and psychiatric treatment of the habitual criminals in institutions designed for their care. The author, in attacking the theory of the Baumes laws, says positively: "The one great lesson of criminological history is that severity of punishment is not an adequate deterrent."

Dr. Kirchwey, welcoming the abatement of the "crime wave" hysteria, appealed to cooler counsels in the consideration of the causes of crime. He believed that savage punishment for crime was a mistaken emphasis; that greater good could come from "a study of the individual and social factors which have coöperated in producing the criminal mind." He refused to take seriously the efforts of the Baumes laws to speed up procedural law and judicial administration. These are, after all, unimportant. With courts and police in politics much is lacking. Said he: "It is written in letters of blood in the history of the race that savage punishments in the long run defeat their own ends. We may safely leave the Baumes laws and their like to the verdict of history."

What had been reached, it appeared, was a breathing spell. Authorities were refusing to believe that a crime wave existed; they refused to give sanction to the cry for stern modes of punishment. They were insisting that the emphasis is misplaced; crime reflects a social condition and an individual attitude. We must first study the social background, and then the proper treatment of the criminal before we may speak with assurance.

NATIONAL CONFERENCE ON REDUCTION OF CRIME. The National Crime Commission, as its most important activity of the year, was responsible for the calling of this conference in Washington, in November. Some three hundred delegates, under the chairmanship of F. Trubee Davison, assembled. There was commendation for the New York Baumes laws by Mr. Davison who declared that it was the chief aim of the Commission "to stimulate the formation of suitable agencies throughout the United States whose task it should be not only to study the crime situation from a local standpoint, but to recommend and urge to proper authorities immediate measures of practical relief." Charles H. Tuttle U. S. District Attorney for the Southern District of New York, in pointing out the evils of the "fence" system, declared that the entire crime bill of the country amounted to ten billions of dollars annually. It was his belief that the Federal authorities had ample powers to cope with the "fence." On the first day, other speakers made mention of the need for crime statistics, the strengthening of the police power, the elimination of antiquated statutes, and the assistance from private individuals in an organized vigilante system.

Chief Justice Taft held the floor at the second day's session. His approach took little heed of newer theories in criminology. Justice Taft spoke favorably of the arousal of public opinion throughout the country, the creation of State commissions, and the theories underlying the work of the Baumes commission. The purpose of punishment is its deterrent effect, and he warned against over-sentimentalizing the criminal. The Chief Justice called for the strengthening of the police, prompter indictments, and the investing of judges with greater powers "to guide the trial and to help the jury in understanding the evidence and in reaching its conclusion upon the evidence." He objected particularly to jurors being given free rein, and to the types of jurymen being chosen. He said: "There will have to be a further examination of the methods by which jurors are selected. The method of selection ought not to be such that counsel for the defendants, by the exclusion of worthy citizens from the panel, may select jurors of weak intelligence, of little experience and subject to emotions easily aroused."

Other speakers reverted to a favorite theme at these discussions: The necessity for the establishment of a national clearing house for criminal statistics.

The conference, too, preoccupied itself with the medical-psychiatric aspects of crime. The Massachusetts so-called Briggs law was explained by its author. The law calls for the sitting of a board of psychiatrists for the purpose of examining individuals indicted for capital offenses or of second offenders, in felonies. The psychiatrists act as friends of the court, and thus eliminate the warring alienists who have so often confused important issues. This method of handling criminals was further stressed by Dr. F. E. Williams of the National Committee for Mental Hygiene. He said:

> There is no more difficult question to solve than the mental status, mental mechanisms or capabilities of a prisoner and the bearing these may or may not have upon his conduct and the possibility of his rehabilitation. All the resources of modern psychiatry and psychology are necessary and these should be available to the cour through the possibility of the appointment of psychiatrists from a qualified list, who shall be given opportunity for thorough psychiatric examination, with obligatory written reports and a remuneration from public funds. The process is not primarily in the interest of the prisoner, but in the interest of the social group, there being but one end in view—the protection of the group from any further attacks by the prisoner.

NEW YORK STATE. Mention has been made in the YEAR BOOK (1926) of the work of the Baumes Commission. Subcommissions continued to sit and a variety of useful activities has been performed particularly along preventive lines. The subcommission on penal institutions submitted its report in December. It called for the construction of new prison shops and the rehabilitation of old ones, the completion of Sing Sing Prison, and the development of a varied class of industry to keep prisoners occupied. Of the 6000 prisoners in State institutions it appeared that 3000 had little or no work to do, that the prisons were not functioning adequately in the reclaiming of offenders, and that adequate investigations were not being made of the prisoners prior to confinement. Said the report on this phase:

> Often convicted ones go to States' prison when reformatory methods or mental and physical treatment would better serve the State, society, and the delinquent. There is much guessing by police, prosecutors and judges as to the proper treatment of convicted persons. Facts—social, medical, mental—are essential to proper disposal and treatment of every person convicted of crime. Adequate social histories are essential both for classification and treatment of prisoners and to also indicate points of attack in preventing crime.

The subcommission made another important recommendation for the abolition of county jails, except for the briefest terms of confinement. In their places it would put district penitentiaries and State industrial farms, the latter to be equipped for vocational training. The sub-commission on police delivered an informal report in December, paying particular attention to the status of private detectives. It indicated it would recommend better education and higher standards for these, the supervision to be placed in the hands of the State Board of Regents.

Another important development in this field was the address of Governor Smith before the Baumes Commission, on December 6. The Governor declared he favored radical changes in the sentencing of felons and in the system of parole and probation. With regard to the former the Governor advocated the removal of the power of sentence from judges and the placing of it in a board "the members of which would be the highest salaried men in the State's employ." The board would have power to determine whether a convicted felon should go to an insane asylum or to prison, the amount of punishment, and the extent of parole granted. Said the Governor: "The power of the judge to sentence to death has done more than anything else to prevent convictions for murder in the first degree. The jury in felony cases ought to determine only the guilt or innocence of the person on trial. If the accused is adjudged guilty, he should be turned over to the State for disposition to be determined by a special board."

Governor Smith also advocated a new kind of board of parole made up of the State commissioner of correction, the warden of the prison where the prisoner was confined, and a third member to devote all his time to the work. At present the members of the board receive very little compensation, with the result that the warden is largely responsible for its functioning. The Governor also would like to see probation placed under the judiciary.

Statistics. Students of this subject continued indebted to Dr. Frederick L. Hoffman for the compilation of the only trustworthy statistics at present being made. Mention has already been given in these columns to the general lack of reliable crime statistics and how those being presented are open to all varieties of interpretation. Dr. Hoffman, in presenting his murder death rates for 1926, finds a decline from 1925 of 11 per 100,000 to 9.9 for the 28 cities in which uniform statistics have been kept. New York City's murder death rate dropped from 6.4 to 5.7 in 1926, Chicago's from 18.8 to 16.7 while Jacksonville, Florida, had a rate of 75.9 in 1926 and Birmingham, Alabama, had a rate of 58.8 (54.5 in 1925). Other murder rates were: Boston, 3.9; Cleveland, 12.5; Dallas, 32; Detroit, 25.3; Houston, Texas, 25.8; Kansas City, Mo., 18.8; Minneapolis, 2.1; Nashville, 29.2; Philadelphia, 8.6; Pittsburgh, 10.4; Richmond, 10.1; St. Louis, 18.6; San Francisco, 8.6; Tampa, Florida, 6.7; Washington, D. C., 10.0. There were no homicides reported from Gloucester, Haverhill, Malden, Newton and Salem, all in Massachusetts, and from New Britain, Conn. Dr. Hoffman believed that the year 1926 marked the crest of murder deaths and that crime commissions were helping considerably. Yet in 1926, 12,000 murders had taken place. This authority further declared that the New York Baumes laws would have "a profound effect in checking the increase of serious crimes."

The New York Police Department, too, issued some significant criminal figures. In discussing the large decrease in violent crimes in New York City for the months of April, May and June of the year, the police commissioner was of the opinion that the Baumes laws had acted as marked deterrents. Other important factors were the greater vigilance of the police and the district attorney and the severe sentences being imposed by the courts. The police commissioner, in comparing the second quarter of 1927 with those of 1926 and 1925, gave the following figures to show the drop that had taken place:

	1927	*1926*	*1925*
Murder or manslaughter	67	72	81
Felonious assault	511	555	576
Assault and robbery	207	284	328
Burglary	826	854	1,004
Total	1,611	1,765	1,989

Hold-ups (assault and robbery in above) greatly fell off, notably in jewelry shop cases (100 per cent), in messenger cases (92 per cent), in office hold-ups (89 per cent), in garage hold-ups (85 per cent), in payroll hold-ups (67 per cent), in truck robberies (67 per cent), in taxi hold-ups (47 per cent). There were no hold-ups involving more than $10,000 and only 13 involving more than $1000 (as compared with 45 in 1926). In these two groups the hold-ups showed a total loss of $45,458 as compared with $553,064 in 1926. The commissioner also showed a decrease of 10 per cent in grand larceny cases. Comparing the second quarter of 1927 with that of 1926 the commissioner said: "In this connection it may be well to point out that it is in the matter of curtailing automobile thieves and pickpockets that the police have a real opportunity to exercise methods of crime prevention. The second quarter of 1927 shows a decrease in automobile thefts of 10 per cent; in pickpocket cases, a decrease of 75 per cent."

Arrests for all cases during the second quarter of 1927, compared with 1926, showed a large increase, as follows:

	1927	*1926*
Felonies	4,467	5,575
Misdemeanors	34,930	33,911
Juvenile delinquencies	1,480	1,702
Summonses	69,122	57,821
Witnesses	19	34
Total	110,018	98,543

The great necessity for the tabulation and standardization of crime statistics was urged by the National Crime Commission, in a special report. The commission's report called for the establishment, by each State, of a bureau of criminal statistics and a bureau of criminal identification, with the Bureau of the Census and the Bureau of Identification of the Department of Justice acting as the federal clearing houses. In commenting on the present hopeless disorganization, the report said: "For example, New York State has been trying for 98 years to compile statistics of convictions in courts of record and has not yet succeeded in developing them to the point where they are worth anything. No other State can quite match this long record of wasted effort, although some of them come very close to it."

Firearms. One of the important activities of the National Crime Commission has been the agitation toward the restriction of the sale of firearms. In the legislatures of 24 States this year bills were introduced to this effect. Michigan's, New Jersey's, and Rhode Island's laws were rigorous. Penalties against the use of pistols were placed in the laws passed by Vermont, Minnesota, Missouri, Massachusetts and Iowa. Minnesota strengthened its pistol law, but refused to license machine guns. On the other hand, legislatures in the following States refused to act: Montana, Tennessee, Washington, West Virginia, Texas, Pennsylvania, Oklahoma, Idaho, New Mexico, Nebraska, Maine, Indiana, Illinois, Georgia, Arizona, and New York. Illinois refused to restrict the use of both pistols and machine guns.

Other Developments. The example of New York State, in placing increasingly heavy penalties on habitual offenders, was followed by North Dakota, Kansas, Oregon, California, New Jersey, Vermont and South Dakota. In Iowa and Illinois the authorities countenanced the organization of vigilante campaigns with the result that there was a reported drop in bank robberies in rural districts. Other groups of business men began to consider the idea seriously.

CRITICISM. See Literature, English and American; French Literature; German Literature; Scandinavian Literature; Spanish Literature; etc.

CROATIA, krō-ā'shĭ-ȧ, **AND SLAVONIA.** Since 1918 a province of the new state of Jugo-Slavia (q.v.); formerly a crownland of the

Austro-Hungarian Empire, extending from the Adriatic Sea to the Danube River. Area, Jan. 31, 1921, 16,920 square miles; population at the same date, 2,739,593. Capital, Zagreb or Agram, with a population in 1921 of 108,338 (estimated in 1925, 130,000).

CROPS. See Agriculture and articles on various crops such as Corn, Oats, Tobacco, Wheat, etc.

CROSS-COUNTRY RUNNING. Willie Ritola of the Finnish-American Athletic Club, New York City, for the fifth time and for the third year in succession won the national senior cross-country running championship in 1927. Ritola captured the title by covering the six-mile course in Van Cortlandt Park, New York City, in 29 minutes, $27\frac{1}{5}$ seconds, or one-fifth of a second slower than the record. Both the Finnish-American Athletic Club and the Millrose Athletic Association claimed the team honors in this event and the question was referred to the Amateur Athletic Union which failed to reach a decision during 1927. Ritola also captured the Metropolitan senior title for the sixth successive year. The team championship here was awarded to the Millrose Athletic Association.

The intercollegiate cross-country championship was won by Penn State College for the second year in succession, W. J. Cox of Penn State being the individual victor for the second year in a row. His time for the six miles was 30 minutes, $36\frac{4}{5}$ seconds. The team scores of the first five colleges entered were: Penn State, 50; Harvard, 60; Maine, 69; Union, 92; Massachusetts Institute of Technology, 150.

The national Amateur Athletic Union Marathon championship was won for the fourth time by Clarence H. De Mar, whose time for the 26 miles, 385 yards, was 2 hours, 40 minutes, $22\frac{1}{5}$ seconds. De Mar also won the Baltimore Marathon.

CROSSLEY, Arthur William. British chemist, died at Alderley Edge, England, March 6. He was born Feb. 25, 1869, and was educated at the Mill Hill School and at Victoria University, Manchester, later studying at the Universities of Würzburg and Berlin, receiving the degree of Ph.D. from the former. In 1904 he was appointed professor of chemistry and director of the research laboratory of the Pharmaceutical Society of Great Britain, and later was Daniell professor of chemistry in King's College, University of London. In 1907 he was elected a Fellow of the Royal Society. During the World War he was secretary to the chemical warfare committee of the Ministry of Munitions. From 1916 he served as commandant and superintendent of the experimental station of the Royal Engineers at Porton, with the rank of lieutenant-colonel, and in recognition of his services received the honors of C.M.G. in 1917 and C.B.E. in 1919. He was an honorary LL.D. of St. Andrews University, and at one time president of the Chemical Society. In 1919 he was made director of the British Cotton Industry Research Association, and organized the Shirley Institute at Didsbury, which was formally opened in 1922. He contributed extensively to various chemical journals.

CROTHERS, Samuel McChord. American clergyman and essayist, died at Cambridge, Mass., November 9. He was born at Oswego, Ill., June 7, 1857, and after graduating from Wittenberg College in 1873 studied at Princeton, from which he received the degree of A.B. in 1874, and at Union Theological Seminary and the Harvard Divinity School. He was ordained to the Presbyterian ministry in 1877, becoming pastor at Eureka, Nev., in the same year, and at Gold Hill, Nev., in 1878. From 1879 to 1881 he had a charge at Santa Barbara, Cal., and in 1882 he entered the Unitarian ministry. He was pastor at Brattleboro, Vt., until 1886, and at St. Paul, Minn., from 1886 to 1894, when he went to Cambridge, Mass. to be pastor of the First Church, a position he held at the time of his death. He was a preacher for Harvard University, and was widely known for his contributions to magazines and his essays. These were not only humorous and shrewd, but exhibited a ripe and cultured mind well stored with literary lore. With a pleasing irony he often discussed modern conditions in social life and literature, and his work had a broad appeal. The more important of his writings, including his children's stories, are: *Members of One Body* (1894); *Miss Muffet's Christmas Party* (1901); *The Gentle Reader* (1903); *The Understanding Heart* (1903); *The Pardoner's Wallet* (1905); *The Endless Life* (1905); *By the Christmas Fire* (1908); *Oliver Wendell Holmes and His Fellow Boarders* (1909); *Among Friends* (1910); *Humanly Speaking* (1912); *Three Lords of Destiny* (1913); *Meditations on Votes for Women* (1914); *Pleasures of an Absentee Landlord* (1916); *The Dame School of Experience* (1919); *How to Know Emerson* (1920); and *The Cheerful Giver* (1923).

CRUISERS, See Naval Progress.

CSERNOCH, chĕr-nŭk, Johann, Cardinal. Archbishop of Graz and primate of Hungary, died at Budapest, July 25. He was born at Kalocsa, June 1852, and was educated at Graz and the University of Vienna, being made priest at Vienna in November, 1874. After serving three years as chaplain, and a year as professor of theology at Graz, he was made secretary and chancellor of the Archbishopric of Graz. In 1888 he became prebendary and in 1893 canon of the cathedral, under Archbishop Simor. He was a church leader in Hungary, and was one of the founders of the Catholic Party by which he was elected to Parliament. Ill health prevented his acceptance of the bishopric of Szatmar, but in 1908 he was appointed bishop of Temesvar, from which he was transferred to the see of Kalocsa in 1911, and in 1913 he became Archbishop of Graz and primate of Hungary. He was created a cardinal by Pope Benedict XV in 1914. Under the régime of Bela Kun he was threatened and expelled from his residence, but with the stabilization of conditions he returned to his see. In June, 1926, he visited the United States on the occasion of the Eucharistic Congress at Chicago, and was extensively honored by former Hungarians in America.

CUBA. a republic of the West Indies consisting of the large island of the same name, the Isle of Pines, and small adjacent islands. Capital, Havana.

Area and Population. The area is 44,164 square miles of which 41,634 are for the island of Cuba, 1180 for the Isle of Pines, and 2350 for the other islands. According to figures furnished by the Director of the Census Bureau the population of Cuba on April 30, 1926, was 3,350,026 inhabitants, distributed as follows:

	Inhabitants
Pinar del Rio	280,831
Habana	922,433
Matanzas	335,080
Santa Clara	719,263
Camagüey	245,042
Oriente	847,377

The City of Havana had 565,272 inhabitants, being the only city in the republic whose population was over 100,000. Other important cities are Cienfuegos, 72,919; Camagüey, 92,073; Manzanillo, 60,544; Santiago de Cuba, 73,800; Guantánamo, 52,598; Santa Clara, 69,200; and Sancti Spiritus, 86,418. There is a large transitory immigration yearly consisting largely of Spanish laborers who return to Spain after the harvest season. The number of immigrants in the year ending June 30, 1926, was 85,288, against 79,361 in the preceding year.

EDUCATION. Education is free and compulsory between the ages of six and 18. The public system was developed under American supervision after the passage of the Education Act of 1899. According to statistics compiled by the Division of Statistics, during 1925–26 there functioned 3664 school buildings, with 6973 classrooms in which were offered all branches of education. The enrollment in the public schools was 433,200 and the average daily attendance 237,684. The number of teachers in the day schools was 7205. Seventy-nine zones were served by 75 visiting teachers, who reached 157 school groups with an average daily attendance of 3644 pupils. The number of night schools which functioned was 79 with an enrollment of 6983 pupils and an average daily attendance of 2685. In the six primary schools held in penal institutions 1070 persons were enrolled, and an average daily attendance of 687 was reached. The number of teachers employed in the various classes for special instruction was 586. The Division of Statistics also received reports from 464 private schools comprising 1318 classrooms, 1532 teachers, and 29,600 pupils, with an average daily attendance of 25,388. There is a special institute for advanced instruction in each province, and annexed to each is a normal school for the training of teachers. University instruction is provided by the University of Havana which was founded in 1721.

PRODUCTION. Sugar and tobacco are the staple products, but cacao, cereals, coffee, potatoes, and fruits are also raised. Cuba is the largest producer of sugar (q.v.) in the world (between four and five million tons annually). The agricultural activities of the inhabitants are consequently largely concentrated on this crop; 80 per cent of the sugar crop is shipped to the United States. President Machado said in a statement made on June 17, regarding the sugar industry, that the grinding of the crop for the season of 1926 and 1927, which was practically completed, showed a production of 4,500,000 tons, thus demonstrating in a conclusive manner that the measures adopted by the present government regarding this important industry have been faithfully carried out. (See preceding YEAR BOOK.) The next grinding season was not to commence until January, 1928, and the order prohibiting the clearing of ground for planting sugar cane was extended for another year, that is, until July, 1928.

COMMERCE. According to the statistical section of the Treasury Department, imports in 1926 amounted to 260,826,438 and exports to 301,708,731 pesos, leaving a favorable trade balance of 40,822,293 pesos. According to the U. S. Bureau of Foreign and Domestic Commerce, the foreign commerce of Cuba during the first half of 1927 amounted to $318,749,603—an increase of $29,320,538, or more than 10 per cent over the corresponding total for the first six months of 1926. After dropping steadily during 1925 and 1926, the trend was reversed so far in 1927, although the foreign trade was still at a very low level. The improvement was the result of enhanced sugar prices, which, while still low, were higher than in 1926. The increase of $33,865,712 in exports was responsible for the greater returns, as imports declined. Exports to all countries other than France were greater in the first half of 1927 than in the same period of 1926, and the loss in the case of France was small. A feature of the trade was the increased sales to the United Kingdom, in which market Cuba suffered a considerable loss in 1926. Shipments to that country were $20,092,825 for the half year, or only $1,888,335 less than for the entire year 1926. Exports to the United States increased $17,802,085, or by nearly 15 per cent.

Cuba's foreign purchases were further curtailed in the first half of 1927 and the imports recorded a loss of $4,545,174. The scaling down of imports was in keeping with the prevailing unfavorable economic situation, as the improvement which occurred in the early part of the year was not sufficiently great to give sustained stimulus to purchases. The grinding of the 1927 sugar crop was carried out at high speed, so that with the reduced output the campaign practically ceased in the middle of May—earlier than in a normal season, despite the fact that the initiation of grinding was delayed until January. This served to hasten the period of widespread unemployment between crops, and tended to accentuate the consequent off-season dullness. Imports from the United States decreased by $2,321,879, or a little more than 2½ per cent; France showed a gain of about 12 per cent and the only other gain was a slight one registered in the countries grouped under "All other."

IMPORTS INTO CUBA

Country of origin	*First half, 1926*	*First half, 1927*	*Increase or decrease*
United States	$86,958,470	$84,636,591	—$2,821,879
Other American countries	14,764,652	13,275,632	— 1,489,020
United Kingdom	6,639,299	6,536,830	— 102,469
France	5,794,298	6,536,366	+ 742,068
Germany	4,243,888	3,641,291	— 602,597
Spain	5,594,611	5,586,140	— 8,471
Other European countries	7,633,823	6,841,408	— 792,415
All other countries	10,009,048	10,038,657	+ 29,609
Total	141,638,089	137,092,915	— 4,545,174

EXPORTS FROM CUBA

Country of destination	*First half, 1926*	*First half, 1927*	*Increase or decrease*
United States	$119,851,209	$137,653,294	+ $17,802,085
Other American countries	3,997.823	5,896,927	+ 1,899,104
United Kingdom	12,588,017	20,092,825	+ 7,504,808
France	3,464,773	3,393,620	— 71,153
Germany	770,092	1,101,781	+ 331,689
Spain	684,220	868,220	+ 184,000
Other European countries	2,561,539	5,961,843	+ 3,400,304
All other countries	3,873,303	6,688,178	+ 2,814,875
Total	147,790,976	181,656,688	+ 33,865,712

The protracted labors of the Cuban Tariff Commission, which was organized by a law of Feb. 9, 1926, finally bore fruit in the promulgation of a new customs tariff which went into effect on Oct. 26, 1927, and effected a sweeping revision of both the text and the rates of duties assessed under the former tariff, which dated from the Spanish régime. According to the commission's announcement, the new tariff was in the nature of an experiment. The tariff commission stated in the "exposition of motives" prefixed to the text of the tariff that it made a thorough study of the tariff systems of the leading countries of the world in an endeavor to resolve upon a tariff that should be soundly scientific in that while it should afford protection to domestic industries already established and give encouragement toward the foundation of such industries as are considered necessary to the progress of the country, it should at the same time not interfere with the legitimate flow of import trade in articles not competitive with those of domestic production. In the words of the commission, "Industrial protection has been undertaken with great prudence. A rate of 25 per cent of the value of the article has been in a few cases exceeded and even this margin must be considered reduced by the amount of duty charged on raw materials."

FINANCE. The state budget for the fiscal year 1926–27, as signed by the president on June 28, 1926, provided for estimated revenues of $86,733,100 and expenditures of $86,143,182. A comparison of the budget for 1926–27 with that of 1925–26 discloses an increase in both expenditures and receipts of approximately $2,000,000. The debt of the republic on Sept. 30, 1925, amounted to $97,875,400, of which $86,110,200 were foreign debt.

COMMUNICATIONS. Decreases in traffic over Cuban railroads are shown for the year 1926 consequent upon the severe crisis affecting the sugar industry. In making comparisons with the previous year, however, it should be borne in mind that the sugar crop of 1925, amounting to over 5,000,000 tons, reached a record volume. The annual statement of the United Railways of Habana for the fiscal year ended June 30, 1926, showed a decrease in gross receipts by £1,019,511 and a decrease in operating expenses by £77,890 as compared with 1925. Goods and livestock traffic dropped from 16,786,215 tons in 1925 to 13,954,591 tons in 1926. Gross receipts of the Cuba Railroad Co. decreased from $6,422,828 for the fiscal year 1924–25 to $4,982,464 for the fiscal year 1925–26. No new construction of importance was undertaken in 1926 on Cuban railways. The total mileage open to public service in the island during the year was 3040, all privately owned and operated.

GOVERNMENT. Executive power is vested in a president and cabinet; and legislative power in a congress of two houses, viz., a senate with 24 members and a house of representatives with 118 members. President in 1927, Gen. Gerardo Machado, inaugurated May 20, 1925; term expires May 20, 1929; vice president, Carlos de la Rosa.

HISTORY. On June 22, President Machado signed a decree approving a bill for constitutional amendments, this project having been previously voted upon favorably by both houses of Congress. Cuban law provides that six months after a resolution to amend the constitution has been passed by two-thirds of the total number of members of the Senate and House of Representatives a constitutional convention must be called for the specific purpose of either approving or rejecting the amendments. Delegates to the convention are elected by each province at the rate of one for each 50,000 inhabitants. The election of delegates to the convention for studying the present amendment will take place in February, 1928, and the convention will meet in March of the same year. One of the amendments increases the length of the Chief Executive's term of office from four to six years.

At the meeting of the Eighth Assembly of the League of Nations in September, Cuba was voted a non-permanent seat on the Council of the League of Nations. Of the nine non-permanent Council seats, four were held by American nations, Canada, Chile, Colombia, and Cuba. See LEAGUE OF NATIONS.

In the latter part of April and May President Machado made an extended visit to the United States, during which he was entertained by the President of the United States and Secretary of State Kellogg, as well as by various civic and political bodies. Among his remarks may be mentioned his belief that a modification of the Platt amendment regulating the relations of Cuba with the rest of the world could very well be modified to the benefit of both countries. He often expressed his admiration for the United States and was very hopeful of the outcome of the Pan-American meeting to be held in his republic early in 1928.

On November 23, Noble Brandon Judah of Chicago was appointed United States ambassador to Cuba to take the place of Maj.-Gen. Enoch H. Crowder, U. S. A., whose resignation was announced in Washington on April 12, to take effect on September 1. General Crowder had represented the United States at Havana since 1923.

CULTURE. See ANTHROPOLOGY.

CUMBERLAND PRESBYTERIAN CHURCH. A branch of the Presbyterian Church, originally the Cumberland Presbytery of Kentucky. It was formed in 1810, when the so-called anti-revival party of the church objected to the admission into the ministry of men who were not up to the usual literary and theological standards and to the doctrine of fatality as taught in the third and tenth chapters of the Westminster Confession of Faith. Its chief strength was in the Southern States, in consequence of which it was barely saved from disunion during the slavery dispute at the time of the Civil War. This situation led to the establishment of the Colored Cumberland Presbyterian Church (see below). A general Assembly which meets annually is the supreme judiciary. In 1927 the denomination comprised 11 synods and 62 presbyteries, and there were 1209 churches, reporting 753 ministers, and a church membership of 56,161. The property was valued at $3,052,210, not including $500,000 endowment for education. There were 1400 Sunday schools, with an enrollment of 48,000. Missionary work was carried on among the Indians in the United States, and churches were maintained in China, where there was an organized presbytery at Canton with eight churches in South China.

During the year missionary work was opened up in South America. The denomination carried on educational work under the direction of the Board of Education and maintained Bethel College and the Cumberland Presbyterian Theological Seminary, both at McKenzie, Tenn. *The Cumberland Presbyterian*, published at Nashville, is the official organ of the Church. The 1927 National Meeting was held at Lakeland, Florida, and the 1928 meeting was announced for June 10–25, at Jackson, Tenn. The Rev. Thomas A. De Vore, Bowling Green, Ky., was moderator of the General Assembly, and the Rev. D. W. Fooks, Nashville, Tenn., was stated clerk and treasurer.

CUMBERLAND PRESBYTERIAN CHURCH, COLORED. A branch of the Cumberland Presbyterian Church which was legally set apart as a separate unit in 1869. The membership of 178 churches of the denomination for which figures were given in the United States census of religious bodies of 1926 was 10,868, as compared with 136 churches and 13,077 members in 1916. In 152 churches reporting Sunday schools there were over 5000 scholars and 840 officers and teachers, as against 7471 scholars and 928 teachers and officers in 1916. The total expenditures of 167 churches in 1926 amounted to $80,304, of which $70,437 was for current expenses and improvements and $9867 for benevolences, missions, etc.; while 127 churches reported in 1926 total expenditures of $39,497. The value of church edifices, including furniture and equipment, as reported by 162 churches, was $353,825 in 1926, as compared with $230,426 reported by 130 churches in 1916. Of the 178 churches reporting in 1926, 60 were in urban communities and 118 were in rural districts.

CURAÇAO, kōō′rä-sä′ō. A Dutch colony in the West Indies consisting of two groups of islands about 500 miles apart, one of them comprising the islands of Curaçao, Bonaire, and Aruba, and the other consisting of the southern part of St. Martin (the northern part belongs to France), St. Eustache, and Saba. Area, 403 square miles; population, Dec. 31, 1925, 58,931, of whom 35,062 were on the island of Curaçao. The capital is Willemstad, on the island of Curaçao, with a population of 16,694. In 1925 there were 52,679 Roman Catholics, 5605 Protestants, and 548 Jews. The movement of population in 1925 was: Births, 2034; deaths, 811; marriages, 448. In the same year there were 44 schools with 8680 pupils. The chief products of the colony are maize, beans, pulse, cattle, salt, and phosphate of lime. The chief industry is oil-refining. The crude oil is imported from Venezuela and Mexico. In 1925 the imports were valued at 70,507,241 guilders and the exports, 59,646,537 guilders; 5606 vessels of 13,105,820 tons entered the ports of the colony in 1925. In 1927 the budget revenue was estimated at 2,697,650 guilders and the expenditure at 2,732,685 guilders. The difference is made up by the mother country. The colony is administered by a governor aided by a council and a colonial council, the members of both being nominated by the sovereign. Governor in 1927, Dr. N. J. L. Brantjes.

CURRENCY. See Coins, Value of Foreign; Financial Review; United States.

CURWOOD, James Oliver. American author, died at Owosso, Mich., August 13. He was born at Owosso, June 12, 1878, and was educated in the literary department of the University of Michigan. At an early age he took up newspaper work, and was assistant editor and editor of the *News-Tribune* of Detroit, resigning to take up literary work exclusively. Spending as he did several months each year in the wilds of the Canadian Northwest, he became an authority on matters pertaining to that region, having traveled as far north as the Arctic coast. These travels, naturally, were reflected in his writings, which included: *The Courage of Captain Plum* (1908); *The Wolf Hunters* (1908); *The Great Lakes* (1909); *The Gold Hunters* (1909); *The Danger Trail* (1910); *The Honor of the Big Snows* (1911); *Philip Steele, of the Royal Mounted* (1911); *Flower of the North* (1912); *Isobel* (1913); *Kazan* (1914); *God's Country and the Woman* (1915); *The Hunted Woman* (1916); *The Grizzly King* (1917); *Baree, Son of Kazan* (1917); *The Courage of Marge O'Doone* (1918); *Nomads of the North* (1919); *The River's End* (1919); *The Valley of Silent Men* (1920); *The Flaming Forest* (1921); *The Country Beyond* (1922); *The Alaskan* (1923); *A Gentleman of Courage* (1924); *The Ancient Highway* (1925), and *The Black Hunter* (1926).

CURZON, Frank. British theatrical manager and owner of racehorses, died at Newmarket, July 2. He was born at Wavertree, Liverpool, Sept. 17, 1868. He first went into business but later took up acting, and at the age of 24 appeared in London in *Queer Street* at the old Terry's Theatre. In 1899, with Charles Hawtrey, he took the Avenue Theatre, later the Playhouse, where he produced a number of notable successes. Later he assumed the management of the Strand Theatre and the Prince of Wales', and by the year 1903 he was in control of a chain of theatres, though most of these he relinquished and at the time of his death he had Wyndham's and the Playhouse only. In addition to his theatrical ventures he owned a number of racehorses, including Call Boy, the Derby winner in 1927. He died soon after the race was run.

CUTLER, James Goold. American banker and manufacturer, died at Rochester, N. Y., April 21. He was born at Albany, N. Y., Apr. 24, 1848, and was educated at Albany Academy, following the profession of architecture until 1894, when he retired from practice. In 1872 he had moved to Rochester, and while there invented and developed the mail chute for transferring mail in large buildings. He also was interested in banking, being the first vice president of the Lincoln Alliance of Rochester, and later president and chairman of the board of the executive committee. He was also a trustee of the Rochester Savings Bank. His interest in public affairs was shown by his membership on the White charter commission in 1895, which proposed a uniform charter for second-class cities of New York State, and in 1896 and 1916 he served as a Republican presidential elector. In 1897 he was appointed consulting architect for the New York State Capitol building. In 1900 Mr. Cutler was commissioner of public safety for Rochester, and from 1904–07 mayor of that city, being twice elected on the Republican ticket. He was president of the Rochester Chamber of Commerce in 1896, trustee of the University of Rochester, president of the Municipal Art Commission, and of the City Planning Advisory Board until 1922. He was a trustee of the Rochester Bureau of Municipal Research, and president of the Western New York State Association of Architects. In his latter life he had been forced by illness to restrict his many public activities.

CUZANIAN, ANTRANIK. Armenian soldier, died at Richardson Hot Springs, Cal., August 31. He was born in Armenia in 1866, and at the age of 23 gave up his trade as a carpenter to enter the Armenian army, in which he fought against the Turks for many years. In 1914 he increased his small army, and fought with the Russians against the Turks, being made a major general and decorated six times for gallantry. On the collapse of the Russian army, he made use of their abandoned military stores and was commander-in-chief of the allied forces operating in the Near East until he relinquished the command to General Allenby and returned to the command of the Armenian army. At the close of the World War he was operating in Persia against the Turkish 36th division. He had fought in 59 engagements against the Turks yet was never wounded in battle, although several horses were shot under him. In 1920 he went to the United States to urge Armenians who had settled there to give financial and moral support to their homeland, and later settled there permanently. He was considered by the Armenians the world over their greatest soldier and hero.

CYCLING. Both outdoor and indoor cycling increased in popularity in 1927, the races at the New York Velodrome attracting the largest crowds in the history of the sport, while the December six-day race at Madison Square Garden in the same city drew a total of 150,000 spectators, 21,000 being on hand at the finish of the "grind."

Franco Georgetti of Italy was the leading rider of the year among the professionals, winning three of the five American six-day events as well as the motor-paced championship. Only two champions succeeded in retaining their titles. Victor Linert of Belgium captured the world's motor-paced championship for the second successive year and Cecil Walker of Australia won the all-around American title for the fourth year in a row.

James Walthour, Jr., proved the best amateur rider of 1927, capturing the national sprint, road and all-around championships.

CYPRUS. A British island, situated 40 miles from the coast of Asia Minor and 60 from the coast of Syria; the third largest island in the Mediterranean Sea. Area, 3584 square miles; population, according to the census of 1921, 310,709, of whom 61,422 were Mohammedans. Capital, Nicosia, with a population of 18,461. In 1925 there were 852 elementary schools with 1196 teachers and an enrollment of 47,515, of whom 38,195 were Greek-Christian. With about one-third of the arable land under cultivation, agriculture forms the chief occupation of the people of the island. Forestry and the cultivation of the vine are rapidly taking an important place in the production of wealth on the island. Among the principal agricultural products are wheat, barley, oats, potatoes, linseed, cotton, animal products and fruit. Asbestos and copper are mined and exported in considerable quantities.

The merchandise imported in 1925 was valued at £1,583,198; exported, £1,198,615. The revenue for the same year was £668,131 and the expenditure, £619,621. The total shipping which entered and cleared amounted to 1,333,306 tons in 1925. The island was administered under a convention with Turkey by Great Britain after June 4, 1878, and was annexed by Great Britain at the outbreak of the war with Turkey on Nov. 5, 1914. It is under a high commissioner having the usual powers of a colonial governor, aided by an executive council and a legislative council of 24 members of whom nine are office-holders and the remainder elected for five years, 12 of them by non-Mohammedan voters and three by Mohammedan voters. On May 1, 1925, the island was given the status of a colony. Governor during 1927, Sir Ronald Storrs.

CY'RENAICA. A colony belonging to Italy on the north coast of Africa; until 1919 it formed a part of Libya; in that year, for administrative and military purposes, Libya was divided up into Cyrenaica and Tripolitania (q.v.). The area is estimated at about, 285,640 square miles; population, according to the census of 1921, about 220,000 natives, and 9719 Europeans (9402 Italians). Benghazi is the principal town with a population of 30,000. The chief occupation of the people is agriculture, although there are vast possibilities for cattle raising. Barley and wheat are the chief products. The former is the chief food of the people. In 1923 the imports were 70,811,245 lire and the exports 17,608,774 lire. The principal imports are cotton goods and sugar and the principal exports, sponges and barley (7,430,623 lire in 1924). The internal commerce consists mainly of caravan trade between Benghazi and Wadi. For 1925–26 the revenue and expenditure were estimated at: Colonial revenue, 161,825,000 lire; civil expenditure, 53,000,000 lire; military expenditure, 108,825,000 lire. Governor during 1927, S. E. Attilio Teruzzi (appointed Dec. 2, 1926). See ARCHÆOLOGY.

CZECHOSLOVAKIA, chĕko-slovä'kia. An eastern European republic, formed Oct. 28, 1918, out of the Slav regions of the old Austro-Hungarian Empire; formally dedicated a republic, Nov. 14, 1918; comprising the former Austro-Hungarian provinces of Bohemia, Moravia, Silesia, Slovakia, and Ruthenia, together with the portion of the Teschen district assigned to Czechoslovakia at the Ambassadors' Conference, July 28, 1920, Capital, Prague.

AREA AND POPULATION. The total area of Czechoslovakia is 54,207 square miles. The population at the census of Feb. 15, 1921, was 13,613,172. By race it was distributed as follows: Czechoslovaks, 8,760,937 (65.5 per cent); Germans, 3,123,568 (23.3 per cent); Magyars, 745,431 (5.5 per cent). Russians, 461,849 (3.4 per cent); Jews, 180,855 (1.3 per cent); Poles, 75,853 (0.5 per cent); others, 25,871 (0.2 per cent). There were besides 238,808 aliens. The Czechoslovaks and Germans made up almost exclusively the population of Bohemia and Moravia, and the Czechoslovaks about half of Silesia and more than two-thirds of Slovakia. The largest cities with their populations in 1921 are: Prague, 676,657; Brno, 221,758; Ostrava, 113,709; and Bratislava, 93,189. The majority of the people are Roman Catholics, who numbered 10,383,833 in 1921.

EDUCATION. Elementary instruction is compulsory between the ages of six and 14. In 1925 there were 13,984 public and elementary private schools, with 688,796 boys and 708,329 girls and 1702 public and private higher-grade schools with 172,168 boys and 149,360 girls. During the school year 1925–26 there were 377 secondary Latin and technical schools with 105,356 pupils. There are four universities as follows: Prague (Czech), with 8195 students; Prague (German), 3527; Brno (Czech), 1671; and Bratislava (Slovak), 1251.

PRODUCTION. The soil of Czechoslovakia is naturally fertile, especially in the lower part of the country, where the cultivation of beets, wheat, barley, rye, and oats is carried on quite extensively. In 1925 there were 14,605,000 acres of arable land, 6,379,000 acres of meadows and pastures, 404,000 acres of gardens and vineyards, and 11,496,000 acres of forests. The following table shows the area and production of the principal crops:

AREA AND PRODUCTION OF PRINCIPAL CROPS
[*Figures in thousands*]

Crop	*Acres* *1925*	*Bushels* *1925*
Wheat	1,526	89,809
Rye	2,091	58,098
Barley	1,714	57,208
Oats	2,068	89,863
Corn	387	12,043
Potatoes	1,580	275,522
Sugar beets	760	11,026[a]
Hops	25	14,415[b]
Grapes	41	.....
Hemp	29	21,148[b]
Flax	61	30,137[b]

[a] Thousands of metric tons.
[b] Thousands of pounds.

Sugar production, one of the principal industries of the country, had been steadily rising since 1921, until it reached a record level of 1,509,000 metric tons for the 1925–26 season which ended September 30. It was estimated that the output for 1926–27 would be materially smaller owing in part to a restriction in area devoted to sugar beets and in part to unfavorable weather. Low prices which prevailed during the year were responsible in a large measure for the restriction in cultivation. The coal resources consist of several hard-coal fields and lignite basins, the largest of which are situated in northern Moravia and Silesia and in northwestern Bohemia. The coal industry profited very much as a result of the British strike, and it seemed certain that the 1926 production would greatly exceed the 1925 figure of 12,753,000 metric tons.

The manufacture of glass is one of the oldest industries in the country. It is estimated that the factories have an annual manufacturing capacity of 415,000 tons of hollow glass, 132,000 tons of plate and window glass, and 187,000 tons of special glass. The fact that the domestic market absorbs only 20 per cent of the entire production makes it necessary for the industry to depend upon export trade for its existence. In recent years, however, the situation of the industry has been adversely affected by a variety of causes, notably high protective tariffs and the keen competition of certain European countries with depreciated currencies. The production of iron and steel amounts to approximately one-half of the output of the old Austro-Hungarian Empire, but whereas the former empire consumed practically all its production, Czechoslovakia needs only about 50 per cent of its output. Other important and active industries of the country are the manufacture of china and textiles, leather working, and brewing.

COMMERCE. When Czechoslovakia became an independent state it held within its borders approximately 80 per cent of the industries of the former Austro-Hungarian Empire. It is easy to understand that a population of some 14,000,000 could not possibly absorb the entire output of this industrial organization, and as a result most, if not all, of the industries are dependent upon a successful export trade, it might be said, for their very existence. Up to the present time Czechoslovakia has met with gratifying results in its efforts to find foreign markets for its goods. The balance of trade has steadily remained favorable, even in the face of increasing competition and depreciated currencies in neighboring countries. The following table shows the principal articles of import and export in the foreign trade for 1925. Value is given only, as the quantity of a large number of articles

PRINCIPAL CZECHOSLOVAK IMPORTS AND EXPORTS
[*In thousands of crowns*]

Articles	*1925*
IMPORTS	
Raw cotton	2,795,028
Cotton goods and yarn	425,744
Grain, malt, and flour	2,533,476
Wool, and manufactures of	1,776,053
Livestock	768,655
Silk and silk products	533,688
Fats and greases	674,551
Flax, hemp, and jute	576,124
Animal products	568,976
Machinery and apparatus	474,854
Wood, coal, and peat	467,131
Iron and iron products	486,522
Base metals other than iron	532,607
Fruits and vegetables	559,747
Minerals	414,467
Chemical products	378,481
Tobacco	401,809
EXPORTS	
Sugar	2,321,642
Cotton goods and yarn	3,168,577
Wood, coal, and peat	1,957,549
Glass and glassware	1,298,516
Wool, and manufactures of	1,797,086
Iron and iron products	1,231,378
Grain, malt, and flour	778,404
Machinery and apparatus	402,456
Leather and leather goods	685,494
Silk and silk products	408,746
Fruits and vegetables	652,447
Flax, hemp, and jute	635,745
Hats, hoisery, clothing, etc.	437,363
Porcelain	389,656
Paper and paper goods	321,676

is expressed in "pieces," without tonnage figures, and comparisons on this basis would be of little use.

Preliminary reports for 1926 showed imports valued at 15,263,000,000 crowns ($457,890,000) and exports at 17,858,000,000 crowns ($535,700,000). While the favorable balance for 1926 is larger than in 1925 it was achieved with smaller volume of trade than in the previous year, owing to the condition of depression which generally prevailed throughout 1926. The trade with the United States in 1926 showed exports to the United States valued at 845,100,000 crowns and imports from the United States valued at 759,500,000 crowns.

FINANCE. The total authorized expenditures for actual state administration in 1927 amounted to 9,703,505,000 crowns, while receipts were estimated at 9,723,915,000 crowns, this showing an anticipated surplus of 20,410,000 crowns. The *total expenditure is subdivided in the following* manner:

AUTHORIZED BUDGET EXPENDITURES, 1927

Purposes	*Expenditures in thousands of crowns*	*Per cent of total*
Central State authorities (President, Parliament, Cabinet)	89,016	.96
Foreign affairs and army	1,506,005	19.68
Internal administration (interior, justice, social welfare, economic policy, transportation, education, etc.)	4,196,006	45.84
Finance administration	3,908,106	33.97
Supreme accounting office	4,372	.05
Total	9,703,505	100.00

The following table shows the status of the Czechoslovak national debt, together with expenditures to be met in the year 1927 for its service:

NATIONAL DEBT
[*Amount in thousands of crowns*]

Item	*Capital*	*Service for 1927*		
		Interest	*Amortization*	*Total*
Internal debt	24,049,196	1,338,933	523,891	1,857,824
Foreign debt	6,495,829	310,682	91,464	402,146
Debts arising from peace treaties	4,400,000	260,000	.....	260,000
Administrative expenses	....	......	.....	52,968
Total	34,945,025	1,904,615	615,355	2,572,938

COMMUNICATIONS. The length of the Czechoslovak State railways at the close of 1926 totaled 11,032 kilometers, of which 7246 kilometers were main line and 3786 kilometers branch line.

In addition the State railways were operating, for the account of private owners, 2308 kilometers of track. Operating revenues of the State Railways in 1926 amounted to 4,005,834,000 crowns and other revenues to 206,586,000 crowns, while operating expenses reached 3,642,745,000 crowns and other expenses 447,149,000. According to preliminary returns, operating revenues for the first half of 1927 (430,446,000 crowns from passengers and baggage service and 1,456,692,000 crowns from freight service) showed an improvement—the more marked as the heaviest traffic occurs in the autumn. The rolling stock in operation on July 1, 1926, comprised 4319 locomotives, 112,886 freight cars and 8494 passenger cars. The general condition of the equipment was considered satisfactory, though rolling stock was not quite up to western European standard. During 1927 the ministry of railways planned to scrap 110 locomotives of low efficiency and uneconomical maintenance, and expected to purchase 38 steam locomotives and 12 electric locomotives (the latter for service on the railway stations in the city of Prague); 120 passenger cars and 2583 freight cars were also to be scrapped and 133 new passenger cars were to be purchased. Present electrification was limited to the suburban lines at Prague (52 kilometers in length), where completion was expected in May, 1928.

GOVERNMENT. According to the constitution passed by the National Assembly, Feb. 29, 1920, executive power is vested in a president, elected for seven years by the two chambers in joint session, who appoints and recalls his ministers; and legislative power in a senate of 150 members and a chamber of deputies of 300 members, the former elected by all citizens over the age of 26 and the latter by all citizens over the age of 21. The principle of proportional representation is applied. President in 1927, Thomas G. Masaryk (elected May 28, 1920; reëlected May 27, 1927). The Czechoslovak government, appointed on Oct. 12, 1926, consisted of the following ministers: Prime Minister, Antonin Švehla; Foreign Affairs, Dr. Eduard Beneš; Finance, Dr. K. Engliš; Interior, J. Černy; Commerce, F. Peroutka; Public Works. Dr. Fr. Spina; Railways, J. Najman; Social Welfare, Jan Šrámek; Justice, Dr. R. Mavr-Harting; Agriculture, Dr. O. Srdínko; Education, Dr. M. Hodža; National Defense, F. Urdžal; Posts and Telegraphs, Dr. F. Nosek; Health, M. Tiso (January, 1927); Unification of Laws, M. Gazhik.

HISTORY. The outstanding event of the year was the reëlection of President Thomas Garrigue Masaryk to a second term of seven years on May 27. His election was not unanimous by any means. According to the constitution the president is elected by the national assembly. About 50 Communists voted against Masaryk and more than 100 ballots were turned in blank. In a speech delivered on October 28 in celebration of the ninth anniversary of the founding of the republic President Masaryk stated that land reform was the country's greatest need at the present time. "The agrarian reform will soon be completed in the historic sections of the country; in Slovakia and Carpatho-Russia more work remains to be done. Next to the revolution, the land reform is the greatest deed of the new republic; it is the crowning work and the genuine realization of the revolution.

"After the war there were hunger and misery in our country, too, and the people looked askance at the huge landed estates. By means of the law of sequestration we forestalled social explosions, as the people received the hope of obtaining land. And in reality the land reform had this satisfying effect at the beginning. In other places, for example in England, it was different. While with us not a hair of the big landowner's head was touched, in Ireland some of them were slain before the reform was put through. And in other places—not only in Russia—the land reform was carried out quite differently than with us. In our case at least 80 per cent of the change in land ownership was made voluntarily and in agreement.

"I understand that the big landowners gave up their privileges unwillingly; and still this reform has served the interests of the large landholders, especially the nobles, not only morally, but economically, by forcing them to take up actual agricultural work and to adopt an enterprising spirit.

"Regarding our position abroad, I am able to point out with pleasure that it shows successes and that they are loyally recognized by other countries, both great and small. This is of great value to us, for we need the recognition and good will of other nations for our consolidation; domestic policies are all too closely linked with foreign policies. Our foreign policy demands and will demand caution, and certainly also understanding of the shifting European situation. The internal conditions of all countries are changing. The vanquished and the victors have suffered through the war, but there is already a consolidation in sight, particularly in Germany. I have often pointed out already that we must take into consideration not the defeated, but the revived and powerful Germany.

"I have never blinded myself to the fact that the peace agreements and particularly the new division of Europe are not perfect in all details, for they are the work of human beings. But it may be asserted with certainty that the post-war organization of Europe is more just than the pre-war organization was. There can be negotiations over the details of a correction, but this must be done in an expert and just way, not through agitation. And the negotiations must be carried on between the States. The peace treaties will not be disturbed, for we cannot allow them to become scraps of paper and general insecurity and de facto anarchy to prevail.

"Decent, honorable men can reach an essential agreement on any and all problems, even the most difficult. This was properly borne in mind in the programme of the League of Nations."

DA CUNHA (kōō'nyȧ) GASTAO. Brazilian statesman and publicist, died at Rio de Janeiro, July 5. He was for many years a leading figure in the diplomatic life of Brazil, serving as Brazilian ambassador to Portugal and to the Vatican, and in 1919 was appointed ambassador to Italy. In 1920 he was transferred to France as ambassador, and in the following January participated in the organization of the League of Nations, being a member of its Council. In 1921 he became president of the Council of the League, serving again as president in the following year, but through a stroke of paralysis was unable to preside over the opening sessions of the third meeting of the League of Nations, which occurred late in the summer of that year.

DAGGETT, MRS. MABEL POTTER. American author, died at New York City, November 13. Born at Syracuse, N. Y., the daughter of Albert P. and Sara Louise Potter, she graduated from Syracuse University in 1895, and entered newspaper work. She was editor of the woman's page of the *Post-Standard* of Syracuse, 1895–1900, and of the Sunday *North American* of Philadelphia, 1900–01, when she married John Duval Daggett. She was a special writer and editor for a number of magazines, and was prominent in the movement for woman suffrage. She was special commissioner to France for the Butterick Publishing Company, and was active in the French war relief in 1919. She was the author of: *In Lockerbie Street, A Little Appreciation of James Whitcomb Riley* (1909); *Women Wanted* (1918); and *Marie of Rumania* (1926) based on a visit to the Queen.

DAHOMEY, dȧ-hō'mĭ. A French colony on the west coast of Africa between Togoland on the west, the British possessions of Lagos and Nigeria on the east, and the French military territories on the north. It is a subdivision of the colony of French West Africa (q.v.). The colony has only about 70 miles of coast, but opens out northwards into a wide hinterland. Area, 42,460 square miles; population, according to the census of 1925, 979,609, of whom 900 were Europeans. The chief centre of trade and the seat of the government is Porto Novo with a population of about 20,000. The population is of pure negro blood, and belong to the Ewe family. They are very industrious and engage mainly in agriculture. In the coastal region they raise potatoes, corn, manioc, and yams. In the central provinces, cotton culture has been introduced. The forests contain oil palms of commercial importance. The chief exports are palm oil and palm kernels. The local budget for 1926 was 19,102,000 francs.

DAIRYING. The dairy industry in the United States enjoyed another good year in 1927. Consumption of butter and fluid milk increased sufficiently to absorb an increase in production averaging about 4,000,000,000 pounds of milk annually in recent years. The production of condensed and evaporated milk increased approximately 11 per cent in 1927, as compared with 1926, while consumption increased about 3 per cent. The production of cheese declined approximately 6 per cent, due in part to increased demand for milk for other uses. The apparent consumption of cheese showed little change. Existing tariff regulations on butter were effective in preventing importation, though at the beginning of the year small amounts were received from the southern hemisphere when stocks on hand were unusually low and the price was relatively high as compared with European markets. But in the summer domestic stocks were replenished to such an extent that there was some concern about the maintenance of satisfactory prices. The large stocks on hand were not confined to butter as there were also relatively large stores of canned milk and cheese. In the fall and winter the stocks of dairy products were, however, normally reduced without significant effect on prices.

The organizations of producers have been effective for a number of years in the fluid milk sections in maintaining stable prices for milk, and, with the increased tariff effective in 1926 on butter and cheese, dairymen appeared to be established in a well founded industry which depends upon domestic consumption for the disposal of its products.

During 1927 the United States exported only 4,343,142 pounds of butter and 3,410,353 pounds of cheese, and this went almost entirely to countries of South and Central America and the West Indies. The exports of condensed, evaporated and powdered milk totaled about 106,353,820 pounds in 1927, which was approximately 10 per cent less than in 1926. Canned milk was exported mostly to various European countries, particularly Great Britain and the Orient where the possibilities of developing an export trade in canned milk appear promising should the need for disposal of surplus dairy products exist.

Cheese is the only dairy product imported in appreciable amounts. Some 79,796,042 pounds of cheese were imported in 1927, consisting mainly of special types from Italy and Switzerland. There was an approximate 10 per cent increase in the 1927 imports as compared with 1926, due in part to increases from Canada and Switzerland.

INTERNATIONAL CONDITIONS. Of outstanding interest in the international dairy situation during 1927, was the heavy production of dairy products by practically all of the European countries. Butter exports of Denmark were about 8 per cent heavier than in 1926 and probably the largest on record. Butter production in Russia increased but the expansion of the industry was not quite as great as had been anticipated. Exports of butter and cheese and condensed milk from The Netherlands were the largest on record, and butter production in Sweden was greater than in 1926 and practically equal to pre-war level. The combined European supplies were estimated at approximately 13,000,000 pounds heavier than in 1926.

Notwithstanding the relatively heavy production of dairy products in the European countries the total quantities of European butter reaching Great Britain during the season of heavy production, May 1 to October 1, were almost identical with those of 1926, 271,000,000 pounds. This was due in part to the heavy German imports which averaged 11 per cent greater for butter and 17 per cent greater for cheese in 1927 than in 1926.

The production of dairy products in the southern hemisphere has in recent years been a very significant factor in European supplies. During 1927, production was considerably reduced as a result of drought conditions in the late spring in Australia and Argentina, and shipments from these sources to the British markets were almost negligible during September and October when the season of heavy production is ordinarily beginning. There was, however, considerable recovery in the last two months of the year in both countries, and conditions in New Zealand, the other main source of butter and cheese from the southern hemisphere, were even better than in 1926. With the approach of the season of heavy production in the southern hemisphere there is usually some butter attracted to the United States but though the price difference between domestic and European markets approached the import duty of 12 cents per pound, the margin did not exceed this figure sufficiently to attract any significant supplies, probably because the heavy storage in the United States and further British markets were prepared to absorb any surplus at a favorable price.

The competition which Swiss cheese has encountered in the world markets from other countries, including the United States, which produced cheese of the Swiss types, has tended to shift interest from cheese to other dairy products, more especially butter, in Switzerland. The federal government appropriated 1,000,000 francs annually for the assistance of the dairy industry, primarily to help in the development of butter manufacturing, and to offset any deficit resulting from guaranteed butter prices. By these means the production of butter considerably increased and importation decreased.

The pooling of New Zealand butter and cheese was done away with in 1927, following the abandonment of any form of price fixing by the New Zealand Dairy Produce Control Board, and butter and cheese were sold in a free market, except that the Board continued to supervise the quality of export products.

TRENDS OF RESEARCH. Research in the production phases of dairying was either directly or indirectly concerned with the factors influencing milk secretion, which has been found to be very complicated in its reaction to various conditions or combinations of conditions. Much progress has been made toward the solution of certain of these problems at the State agricultural experiment stations by dividing the broader study of milk production into its component parts and limiting individual studies to such portions of the problem as initial production immediately after calving; the persistence with which production of fat or milk, or per cent of fat in the milk, is maintained over the entire lactation period; the energy produced in the milk; size of the fat globules; melting point of fat, and the like.

By attacking the problem in this manner the Minnesota and Illinois agricultural experiment stations found that the fat content of the milk could be increased by feeds or rations high in oil, the oil itself being responsible for raising the fat content of the milk, and not the additional energy supplied or the specific action of the feeds. In studies of the inheritance of the capacity to produce large amounts of milk and butterfat, the Illinois Experiment Station found that the limiting factor in milk production was the energy produced in the milk. Physiological studies of milk secretion at the Maine and Missouri experiment stations indicated that from 70 to 80 per cent of the milk produced at a single milking was present in the udder before milking started, while the balance was secreted from cells of the mammary gland as the stimulation of the milking proceeded.

Studies at the Pennsylvania and Minnesota experiment stations showed that dairy calves, unlike many other animals, were able to make normal growth and produce young on rations lacking in Vitamin B, due to their ability to synthesize this substance in their digestive tract from the action of the fermentation bacteria normally present. Cows were, however, unable to synthesize sufficient Vitamin B in this way to maintain normal milk production.

The Iowa Experiment Station conducted extensive studies of the different organisms associated in starters used in the ripening of cream for butter-making. The action of these organisms was studied singly and in combination as to their products and also as to the particular influence of each on the flavor and quality of the butter. Certain bacteria are active at first in the ripening process and raise the acidity of the cream. After a certain acid content is reached the action of this group is attenuated and other types develop more rapidly. This explains why acidity is such a common indicator of the proper stage of ripening for cream, and yet the proper degree of acidity may differ with different starters. These studies thus throw light on the irregularities in the quality of butter produced from time to time by particular plants, using a common starter, and the need of getting new starter cultures when such become contaminated with undesirable bacteria.

For a number of years several of the state agricultural experiment stations have been working on the effect of the various ingredients of ice cream mixes on the freezing point, overrun, shrinkage, and quality and flavor of the finished product. While the principal effects of the various ingredients have been pretty well worked out, the differences in the demand between individuals and localities make general recommendations more a matter of local preference, much in conformity with that to which a community or particular trade has become accustomed. The Massachusetts Agricultural Experiment Station found the shrinkage of ice cream dipped from bulk averaged about one-third of the original volume, but the care of the person dipping was more important than the composition of the mix in its effect on shrinkage.

CHANGES IN PERSONNEL. Dr. C. W. Larson, who was chief of the Bureau of Dairying in the U. S. Department of Agriculture from its creation, July 1, 1924, resigned Dec. 31, 1927, to accept the position of Director of the National Dairy Council, which represents many phases of the dairy industry and is devoted to the promotion of health and child welfare through the education of the public in dairy matters. Dr. H. C. Jackson, Associate Dairy Manufacturing Specialist, in the Bureau of Dairying, U. S. Department of Agriculture, was appointed Chairman of the Dairy Department at the University of Wisconsin to succeed Dr. E. H. Farrington, who was appointed Professor Emeritus of Dairy Husbandry, after 33 years' service as head of the department. Cornell University obtained the services of Dr. Otto Rahn, formerly head of the Dairy Department in the Agricultural Experiment Station at Kiel, Germany, to become Professor of Bacteriology.

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DALL, WILLIAM HEALEY. American naturalist, died in Washington, D. C., March 27. He was born in Boston, Mass., Aug. 21, 1845, and after a public school education became a student under Prof. Louis Agassiz. He took special courses in anatomy and medicine. In 1865 he accompanied the International Telegraph Expedition to Alaska, remaining until 1868. In 1871–84 he was with the United States Coast Survey in Alaska, and in the latter year became palæontologist of that organization, a position he held until 1925. In 1880 he was appointed honorary curator of the United States National Museum, and in 1893 professor of invertebrate palæontology at the Wagner Institute of Science, Philadelphia, Pa. He was elected a member of the National Academy of Sciences, and was a member of the American Academy of Arts and Sciences and other scientific organizations. In addition to various scientific monographs and papers in learned journals, he wrote: *Tribes of the Extreme Northwest; Scientific Results of the Exploration of Alaska: Reports on the Mollusca of the Blake Expedition; Alaska and Its Resources; Coast Pilot of Alaska;* and a biography of Spencer Fullerton Baird.

DALMATIA. A province of Jugo-Slavia; a crownland of Austria until the downfall of the Dual Monarchy in 1918. It extends from Bosnia and Herzegovina west to the Adriatic Sea. Area, 4916 square miles; population, according to the census of Jan. 31, 1921, 621,429. Capital, Zara, with a population, in 1921, of 18,060.

DALY, ARNOLD. American actor, died in a fire in his apartment in New York City, January 13. He was born in Brooklyn, N. Y., in 1875, and, after serving as an office boy for Charles Frohman, theatrical manager, made his first appearance with Fannie Rice in 1892 in *The Jolly Squire*. In 1895 he made his New York début in *Pudd'nhead Wilson*, and soon achieved a reputation as an actor of keen intelligence and charm. After successful engagements in London, he returned to New York, where he introduced the plays of George Bernard Shaw to America. His first effort in this direction was with *Candida*, in 1903; it was produced with his own capital and was a distinct artistic success. This was followed by *Mrs. Warren's Profession* and *You Never Can Tell* in 1904, and later *Arms and the Man* and *The Man of Destiny* in 1906. He played with Madame Simone in *The Return from Jerusalem*, and later in *General John Regan*, 1913–14. Daly acted in vaudeville and motion pictures in order to accumulate means for his own legitimate productions. Among his last performances were those in *The Tavern*, of George M. Cohan, and in *The Emperor Maximilian*, of the Theatre Guild.

DALZELL, JOHN. American politician and for many years a member of the House of Representatives from Pennsylvania; died at Altadena, Cal., October 2. He was born in New York, N. Y., Apr. 19, 1845, and removed to Pittsburgh in 1847. He graduated from Yale in 1865 and was admitted to the bar in 1867. For years he was one of the attorneys of the Pennsylvania R. R. for its western lines, and was attorney for many corporations in Allegheny County, Pennsylvania. He was for 26 years a representative from the 30th Pennsylvania district, being a member of the 50th to the 62nd Congresses, serving as member of the committees on rules, and ways and means, from the 54th to the 62nd Congresses. For many years he was the right-hand man of the Speaker of the House. He was a protectionist, and helped to write the Dingley and the Payne-Aldrich tariff laws. In 1912 he was defeated during the Roosevelt tide, and from that time ceased to be an influence in Republican politics, making a single unsuccessful effort to gain a seat in the Senate. In 1904 and 1908 he was a delegate to the Republican National Convention. He was a regent of the Smithsonian Institution, Washington.

DAMS. UNITED STATES BUREAU OF RECLAMATION. Notable dam construction was carried on during the year by the United States Bureau of Reclamation of the Department of the Interior. There were 117 storage and diversion dams having a combined volume of 20,206,350 cubic yards built by the Bureau which were in operation in 1927.

GUERNSEY DAM. The Guernsey Dam of the North Platte project, Wyoming, a gravel and rock fill structure, with a maximum height of 100 feet and a length of 560 feet and a volume of 400,000 cubic yards, was completed during the year. This dam furnishes stored water and power for the North Platte Irrigation project and was built of sluiced gravel and rock fill. During construction the North Platte River was diverted by means of a diversion tunnel through the south abutment and a portion of this tunnel later was to be used in connection with the south spillway to pass the discharge of two 14.5 feet by 64 feet automatic spillway gates of the drum type. The upper end of the diversion tunnel is used for a settling basin when sand is settled from the power water and the water is wasted through three 5 x 5 foot sluice gates. Penstock tunnels leading away from this basin connect with the power house below the dam. There is also a 50 x 50 foot Stoney gate set in a concrete-lined channel at the north end of the dam. The total spillway capacity is 80,000 cubic feet per second.

MCKAY DAM. The important McKay storage dam for the Umatilla project in Oregon was completed at the end of the year. This dam which was described in the YEAR BOOK for 1925, page 195, was a gravel fill with concrete paving having a maximum height of 160 feet, a length of 2000 feet, and a volume of 2,313,000 cubic yards.

GIBSON DAM. The U. S. Reclamation Service awarded a contract for the construction of the Gibson Dam on the Sun River Project, Montana, the price being $1,566,240. This new dam across the North Fork of Sun River, about 23 miles northwest of Augusta, Mont., provides storage for the Fort Shaw Division to supplement the normal flow of the Sun River which is exhausted normally by July 15. This dam is of the massive concrete arch type with a maximum height of 179 feet, a length of 900 feet and a volume of 167,595 cubic yards of concrete. The outlet work consists of two metal pipes through the dam to be controlled by a hydraulically operated sluice gate and a balanced needle value installed at the downstream face of the dam. A vertical shaft and a concrete tunnel in the left abutment serve as a spillway. The reservoir formed by this dam was to have a capacity of 105,000 acre-feet and furnish a supplemental supply for 90,000 acres of the Sun River project, of which the distribution system had been completed for about 40,000 acres.

STONY GORGE DAM. Another project of the U. S. Reclamation Service upon which work was begun was the Stony Gorge Dam of the Orland irrigation project, near Fruto, California, referred to in the 1926 YEAR BOOK, page 216, for which the contract was awarded Oct. 2, 1926, at $518,904, and for which excavation was begun in December of that year. The first concrete for this dam was placed in the month of June, 1927. This structure is of hollow reënforced concrete with a maximum height of 120 feet, 828 feet in length and with a volume of 38,000 cubic yards, and containing about 1,500,000 pounds of reinforcing steel. The dam was designed of the buttressed type with a reënforced concrete face slab. The main outlet works consist of two metal pipes through the dam, each controlled by a hydraulically operated sluice gate near its upstream end, and a balanced needle valve at its downstream end. A secondary outlet consists of a small needle valve and gate valve. The spillway is located in the central part of the dam and is controlled by three 30 x 30 foot gates. At the end of the year the dam was approximately 60 per cent complete and it was expected to be finished late in 1928. The Stony Gorge reservoir was to have a capacity of 50,200 acre-feet and afford a supplemental supply for 20,000 acres already under irrigation.

ECHO DAM. The Echo Dam under construction across the Weber River, near the town of Echo, Utah, was designed to store water for the Salt Lake Basin irrigation project. This dam consists of an embankment of sand, clay and gravel, sprinkled and rolled, with its upstream face covered with conglomerate riprap and the downstream face with gravel and cobbles. The structure was to be 125 feet in elevation above the stream and 1800 feet in length, the embankment containing about 1,700,000 cubic yards of material. The contract price was $1,125,098 and it was expected to be completed early in the year 1930.

DEADWOOD DAM. Plans were completed during the year for the Deadwood Dam for the Payette Division of the Boise, Idaho, irrigation project. This dam site was on the Deadwood River, a branch of the Payette River, about 25 miles east of Big Eddy, on the Union Pacific R. R., and here it was planned to construct a concrete arch dam, 160 feet in height, forming a reservoir to store 150,000 acre-feet.

OWYHEE DAM. This important project, involving a dam in the canyon section of the Owyhee River, about 20 miles above its mouth, was designed to provide a reservoir with a storage capacity of 595,000 acre-feet for the Owyhee project which would irrigate about 124,000 acres. This dam was to be about 360 feet in height, or 11 feet higher than the Arrowrock Dam in Idaho, which was the world's highest dam, and plans were under development to determine the best type to be used. Already work had been started on the construction of about 28 miles of railway from the Oregon Short Line, 9 miles north of Adrian, Oregon, to the Owyhee Dam site. Considerable preliminary work had been done in the way of topography and diamond drilling and tentative plans for a concrete arch type of dam, 355 feet high above the foundation, 600 feet on top, composed of 405,000 cubic yards concrete and with a channel spillway with 30,000 second-feet capacity had been prepared.

OHIO RIVER DAMS AND LOCKS. The improvement of the Ohio River for navigation involved the construction of a number of fixed and movable dams with the object of providing a channel depth of nine feet for the entire distance of 968 miles. The total estimated cost of this work, which was carried on by the U. S. Army Corps of Engineers, was $105,000,000 and up to the end of 1927 about $89,000,000 had been spent.

The work involved the construction of two fixed and 48 movable dams with navigation locks at each dam with general net dimensions of 110 feet by 600 feet. The navigable passes vary in width from 600 to 1248 feet and are closed by wickets of the Chanoine type. During the year the fixed dam at Deadman's Island, some 13 miles below Pittsburgh, was under construction which was to take the place of the existing dams, Nos. 3 and 4. By 1927, with the exception of the Deadman's Island dam, all of the dams between Pittsburgh and the mouth of the Wabash River had been completed so that there was afforded 839 miles of continuous navigation. Below the Wabash River no dams had been completed, but four were under construction, with one to be started. This stretch included 129 miles. At Louisville, a dam with a maximum head of 37 feet had been completed and was ready for the development of electric power.

In a statement by Gen. Edgar Jadwin, chief of engineers, to the Secretary of War, it was said that, of the four dams remaining, dam No. 50, 1 mile below Weston, Ky., and dam No. 52, $1\frac{3}{10}$ miles below Brookport, Ill., were practically completed and dam No. 51, $\frac{6}{10}$ mile below Golconda, Ill., and dam No. 53, $10\frac{8}{10}$ miles below Joppa, Ill., would be completed by Nov. 1, 1929. Only unusually high water in 1928 and 1929 could delay this programme and a favorable season in 1928 would advance it, it was stated.

Conowingo Dam. At the end of 1927 the construction of the Conowingo Dam referred to in the 1926 Year Book had been completed and the power house built, except for the final closure of the spillway notches and this was in progress. This project involved a dam and power house 480 feet in length near the mouth of the Susquehanna River which was being built by the Susquehanna Power Company, a subsidiary of the Philadelphia Electric Company. Seven 54,000 horse-power units had been contracted for, to be installed in the power house to develop a total of 378,000 horse power, and provision was made for four similar units. The work had reached the point where it was expected that the first units would be brought into service in 1928, and during the year the water wheels and generators were being installed. The excavation of the tailrace, the clearing of the reservoir, and the construction of the highway bridge on the dam, had been completed during the year.

Skagit River Project. The city of Seattle, Wash., in September awarded a contract for the construction of the Diablo Dam in the Skagit project which was one of the units in the hydro-electric development which the city of Seattle was developing about 100 miles to the northeast. The contract price for the dam was $2,263,000 and the dam itself was to be of the constant angle arch type, 400 feet in height, forming a 90,000 acre-feet reservoir that would store water for the Gorge Power House 6 miles below. The length of the arch proper was to be 775 feet and the total length including spillways and tangents was to be 1100 feet. Later a power house was to be built at the Diablo Dam. The dam site was connected by railway with the Great Northern Railway, the branch line being 32 miles in length. The contract awarded called for the completion of the Diablo Dam in September, 1927.

Saluda Dam. For the hydro-electric power development on the Saluda River near Columbia, S. C., the Lexington Water Company, a subsidiary of the General Gas and Electric Corporation, had under construction an earth filled dam approximately 8000 feet in length and 208 feet in height. A contract for this work was let in August and the estimated cost of the entire project was $21,000,000.

Among the numerous dams of importance on which work was in progress during the year, or which had reached completion, a few may be mentioned in various parts of the United States. Preliminary construction was under way on the Coolidge Dam, a "multiple-dome" structure across the Gila River for irrigation in Arizona, while the Lake Pleasant Dam, on the Agua Fria River, was completed. This is a combined irrigation and power project and involved a multiple arch structure 2145 feet in length. Another dam in Arizona was the Horse Mesa, across the Salt River, a structure 306 feet in height above the lowest point in the foundation, also a combined irrigation and power dam.

The Southern California Edison Co. had completed in September, at Shaver Lake, a concrete gravity section dam 2222 feet in length along the crest, and 195 feet high. This was one of the elements in the Big Creek project of this company which was designed to increase materially its capacity. In New York State across Caneadea Crook, Caneadea, N. Y., a concrete arch dam was nearing completion for the Rochester Gas and Electric Co. Here the structure was to be faced with brick and architectural treatment gave it an attractive appearance.

Hume Dam. During the year considerable progress was made on the Hume Dam to impound the waters of the Murray River in Australia, the completion of which was expected in 1930. This dam, which in size was second only to the Elephant Butte Dam in the United States, involved also the construction of a hydro-electric plant which would make electric power available to a region within about 150 miles of the reservoir formed by the dam. There was also under construction in Queensland the Nathan Dam over the Dawson River Valley, and tentative plans were under development. The reservoir thus formed was expected to eclipse the Hume Reservoir in size by 284,000 acre-feet.

The Norman Gold Medal of the American Society of Civil Engineers was awarded to B. S. Jakobsen for a paper "Stresses in Thick Arches of Dams." Mr. Jakobsen had been active in the design and construction of dams for the United States Reclamation Service and for various hydro-electric power developments in the West, and also for the Los Angeles County Flood Control District. During the year a new edition of Edward Wegmann's *The Design and Construction of Dams* was published including a section of nearly 100 pages on "Multiple-Arch Dams" by Fred Moetzli. The work also includes the description of a number of recent dams not mentioned in earlier editions.

DANA, William Parsons Winchester. American artist, died at London, Eng., April 8. He was born in Boston, Mass., Feb. 13, 1833, and after attending the Boston Latin School studied art at the École des Beaux Arts, Paris, and under Picot and Le Poitevin. He lived in New York from 1862 to 1870, maintaining a studio in that city, and in the latter year took up his permanent residence abroad. He received a gold medal at the Paris Exposition in 1878 and the first prize for figure painting at the Pennsylvania Academy of Fine Arts in 1881. He was elected to the National Academy of Design in 1867. He was well known for his pictures of the sea in all its phases, and also for his genre pictures. Notable examples of his work are: "Solitude"; "Gathering Seaweed"; "Emby's Admiral" (Pennsylvania Academy of Design, Philadelphia); "Burning Wreck"; "Ebbtide at Yport"; "Chase of the Frigate Constitution"; and "Heartsease" (Metropolitan Museum, New York).

DANISH LITERATURE. See Scandinavian Literature.

DANZIG. A free city, which, with its surrounding territory, was established by the Treaty of Versailles in 1919. It was formerly a part of the German Empire. Area, about 754 square miles; population, Aug. 31, 1924, 384,000. The administrative district of the city of Danzig had a population of 207,100. The city is the chief outlet for the commerce of Poland and continues to maintain its century-old position of being the leading grain port of the Baltic. Shipping is the chief industry, manufacturing being engaged in largely for local consumption.

In 1925, 3986 vessels of 1,869,979 tons entered and 3958 vessels of 1,846,182 tons cleared from the port. The budget for the fiscal year Apr. 1, 1926, to Mar. 31, 1927, as passed by the Danzig Volkstag on May 5, 1926, balanced at 117,857,180 gulden, and shows an increase of 4,147,450 gulden over the 1925–26 budget of 113,709,730 gulden, which was exceeded by actual disbursements. (1 gulden equals $0.193.) The government of the free city is in the hands of a High Commissioner appointed by the League of Nations. Its constitution approved by the League May 11, 1922, provides for a legislative assembly of 120 members elected for four years, a senate consisting of 20 members, and a president and vice president. The senate is the highest authority in the state and holds secret sessions. High Commissioner at the beginning of 1927, Dr. Van Hamel (appointed Feb. 22, 1926).

DARTMOUTH COLLEGE. A non-sectarian institution of higher education at Hanover, N. H., founded in 1769. The 1927 fall session had an enrollment of 2258 students, most of whom were working for the regular college degree, the exceptions being: Nine graduate students; 37 in the Medical School; 17 in the Thayer School; and 91 in the Tuck School. There were 246 members on the faculty. The productive funds amounted to $9,000,000. The library contained 235,000 volumes. During the year there were under construction the Fisher Ames Baker Memorial Library, the gift of George F. Baker of New York, estimated to cost $1,000,000, a laboratory for the natural sciences, and a new dormitory. Construction of an enclosed hockey rink was also authorized. Admission to Dartmouth College is effected under a selective process, with due weight given to scholarship, character, qualities of leadership, and apparent ability to profit by a college education. A revised curriculum was in force in 1927 providing among other things for special treatment for students of high grade and for the granting of but one degree, Bachelor of Arts, President, Ernest Martin Hopkins, A.M., Litt.D., LL.D.

DATE SCALE. See Horticulture.

DAVIES, Hywel. American mining engineer, died at Washington, D. C., February 19. He was born in Brecknockshire, Wales, Sept. 26, 1859, and was educated in local schools, serving as a teacher and bookkeeper, 1875–85, when he went to the United States. He was naturalized as an American citizen in 1892. He was in charge of the mining office of the East Tennessee Coal Company until 1890, when he was appointed general manager of the du Pont mining operations, serving until 1912. He was a consulting and mining engineer of coal companies in the Southern States and Mexico, being president of the Western Kentucky Coal Operators' Association, 1910–12, and president of the Kentucky State Coal Operators' Association, 1911–13. In 1914 he became government mediator in the Colorado coal strike, and in the following year acted in the same capacity in the eastern Ohio coal strike. He mediated in the Alaska government railroad strike of 1916, and continued as commissioner of conciliation in the United States Department of Labor. During the World War he was government labor administrator for the copper industry, and he was sole referee of the California oil industry, 1919–21. In 1922 he was a member of the United States government commission on labor condition in the Hawaiian Islands. From 1908 to 1914 he was a trustee of the Kentucky State University. He wrote many papers on mining and industrial relations.

DÁVILA, dä′vē-lä, Miguel R. Former President of Honduras, died at Tegucigalpa, Honduras, October 14. He came into prominence as president of the Honduran provisional government which was organized in April, 1907, at the time of the civil war which involved the resignation of President Bonilla. The latter surrendered at Amalpa, Apr. 11, 1907. General Dávila did not actually become president of Honduras until Gen. T. Sierra, who had proclaimed himself president, was defeated in the following month. Dávila was reëlected president in February, 1908, and instituted a number of reforms in government. In 1908 President Dávila became involved in difficulty with the United States government, and the Republic of Honduras was forced to tender an apology for an act considered insulting by the American consular agent at San Pedro. In that year President Dávila lost his power through various revolutionary movements, the presidency being transferred provisionally to Dr. Francisco Bertrand. From that time on Dávila did not figure prominently in the affairs of Honduras.

DAWES PLAN. The operations of the Dawes Plan for reparations took on a more significant aspect in 1927 than in any previous year in light of the fact that S. Parker Gilbert, the Agent General, took occasion to criticize severely German financial policies. In a note presented to the German government on October 20, Mr. Gilbert stated that he was criticizing the government in a friendly manner and for its own good; that he firmly believed Germany was doing her best to meet all her obligations under the agreement, and that he assumed that she was attempting to raise the standard of living of her people through her industrial and commercial development. He felt that Germany had a special incentive to save and economize, but was "developing and executing constantly enlarging programmes of expenditures and borrowings," which jeopardized the Dawes plan and attacked the vitality of the entire economic structure of the country.

Specifically he called attention to the unbalancing of the budget with items of expense which could readily have been postponed to a future time, such as pensions, increases in salaries, compensation for property confiscated during the war, and unsound educational developments. He further attacked the grants made to the federated states by the central government and the undue expansion of credit on the part of the Reichsbank. In concluding he stated that if these financial tendencies continued, economic disaster for Germany would follow, as well as the general impression in foreign countries that Germany regarded her reparation obligations lightly.

The German government replied to Mr. Gilbert's note without any show of anger and attempted to prove to him that his charges were unfounded, and that the increase in borrowing was only in consonance with the increasing industrial activity of the country. Salaries were raised and pensions allowed or increased "for political reasons," nationals were indemnified in accordance with the Treaty of Versailles, and education expenditures would not effect the country for some time to come. The German government admitted that the financial relations between the central government and the various states were not what they might be, but every effort was being made to alter the situation. The note concluded by stating that the government would continue to do everything in its power to maintain a balanced budget and live up to its international obligations. Nearly all shades of German opinion were shocked by the contents of Mr. Gilbert's note. Some attacked it on the grounds of infringing German sovereignty and others declared that it was un-American and written at the behest of the German government itself.

In his annual report covering the third year of the operation of the Dawes Plan, Mr. Gilbert said in connection with the German government's reply to his note of October 20: "Looking toward the future, these declarations of the German government furnish a basis for proceeding with the test of practical experience as intended by the plan, and it is encouraging that the government already has taken some measures for financial reform. The real answer depends on the practical results that follow and on the extent to which Germany succeeds in reversing the tendencies toward overspending and overborrowing that have so generally appeared. Fortunately, this test is a relatively simple one to apply, and it will soon be apparent from the course of public expenditure and borrowing whether or not real reforms have been accomplished."

In concluding his report the Agent General expressed the opinion that ultimately Germany must be left free to pay her war debts of her own accord, without being subjected to the sort of control which he himself is now exercising. "As time goes on and practical experience accumulates, it becomes always clear that neither the reparation problem nor the other problems depending upon it will be finally solved until Germany has been given a definite task to perform on her own responsibility, without foreign supervision and without transfer protection. This, I believe, is the principal lesson to be drawn from the past three years, and it should be constantly in the minds of all concerned as the execution of the plan continues to unfold."

The third year's annuity of 1,500,000,000 marks was punctually paid and the report stated that it was confidently expected that the fourth year's payment of 1,750,000,000 marks would be met just as punctually. Of the 1,500,000,000 marks paid, 410,000,000 were paid from the national budget. For the fourth year, 500,000,000 marks must be raised from this source. Transport taxes, industrial debentures and German railway bonds also will be obliged to bear a heavier burden. France received the greatest share of reparations, totaling 767,000,000 marks, with more than 50 per cent of the payments in kind. Great Britain received 307,000,000 marks; Italy, 108,000,000; Belgium, 97,000,000; the United States, 55,000,000; Jugo-Slavia, 54,000,000; Rumania, 12,500,000; Japan 13,000,000; Portugal, 8,000,000; Greece, 4,000,000; and Poland, 304,000. The third year showed a considerable increase in foreign currency payments in cash or goods, totaling 49 per cent, compared with 35 per cent during the previous year. There was a corresponding decrease in payments in kind. Of deliveries in kind, coal held first place, totaling 200,000,000 marks. Payments in kind included contracts awarded to Germany for dredging work at Havre and bridge construction over the Danube at Belgrade.

The report covered 237 pages and was supplemented by three additional bulky reports from the Commissioners for German railroads and the Reichsbank and the Trustee for Industrial Debentures. It made a thorough investigation of finance, currency, trade, cost of living, employment, and railways. It gave a solemn warning to all bond holders of the German government that the reparation payments represented a first lien on the resources of the country and took precedence over government obligations abroad. The report also hinted at a downward revision of the payments, which was bitterly attacked in the French press. To the French, reparations and the payment of interallied debts are inseparable, and, consequently, they maintain that a reduction in reparations puts off for a longer time the settlement of the Franco-American debt controversy. The American government, on the other hand had repeated time and again that the two problems had absolutely no relation with one another.

DEATH RATE. See VITAL STATISTICS.

DEFECTIVES. See CHILD WELFARE.

DELAWARE. POPULATION. According to the 14th Census, the population of the State on Jan. 1, 1920, was 223,003. The estimated population on July 1, 1927, was 243,000. The capital is Dover.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927.

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	185,000	4,725,000	$3,780,000
	1926	188,000	4,278,000	2,738,000

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, winter	1927	98,000	1,862,000	2,328,000
	1926	108,000	2,060,000	2,678,000
Hay	1927	83,000	147,000[a]	2,378,000
	1926	80,000	118,000[a]	2,156,000
Potatoes	1927	6,000	714,000	571,000
	1926	6,000	516,000	722,000
Sweet potatoes	1927	8,000	880,000	616,000
	1926	9,000	1,251,000	818,000

[a] tons.

Mineral Production. The total mineral product of the State, $539,261 in 1925 as against $512,105 in 1924, consisted chiefly of clay products (1925, $271,701; 1924, $235,555) and stone (1925, $219,054; 1924, $243,279).

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $4,371,251; their rate per capita was $18.29. They included $1,361,416 apportioned for education. Totals not included above, of $399,553 for interest payments and of $2,670,467 for permanent improvement outlays, brought the aggregate of State expenditure to $7,441,271. Of this, $2,216,871 was for highways; $203,612 being for maintenance, and $2,013,259 for construction.

Revenue receipts were $7,880,570; or per capita, $32.97. Of their total, property and special taxes yielded 61.9 per cent, attaining the per capita rate of $20.41. Earnings of the departments and compensation paid the State for officials' services supplied 4.5 per cent of revenue; 18.8 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a tax on gasoline sales.

Net State indebtedness on June 30, 1926, was $8,205,640, or $34.33 per capita. Property subject to ad valorem taxation had a total valuation of $252,041,739. State taxes levied were $630,104, or $2.64 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 331.79. No additional line or trackage was reported to have been constructed in 1927.

Education. By enactment $2,000,000 was appropriated from the funds of the State to be distributed as aid in the construction of modern school buildings, the intention being to promote a state-wide building programme.

Charities and Corrections. The activities of the State were under two bodies, a State Health and Welfare Commission and a State Board of Charities. Among the institutions of the State were a system of industrial schools for whites and for the colored.

Legislation. The State legislature at its regular biennial session enacted a law making 14 amendments in the State corporation act. The amendments were prepared by the State Bar Association, and were intended to render the statute more liberal, with the purpose of preserving the tendency of companies outside the State to seek Delaware charters. Among the amendments the most important provided: Authority to fix quorums of boards of directors at not less than one-third of the membership of the board; permission to remaining directors, though less than a quorum, to fill by majority vote vacancies in a board; permission to pay dividends out of net profits or out of net assets in excess of capital; reduction of incorporation fees to 1 cent on each $100 par value of stock and one-half cent on each share of no par value, with lower rates for shares in excess of 20,000; removal of limitations as to kinds or degrees of preference in stock issues. The Legislature also passed an appropriation bill of $3,407,774 for expenses of the State government in the two years to ensue. It created a commission of five to confer with a like body from New Jersey upon the disputed boundary between the two States, along the course of the Delaware River. The divorce law was amended to provide the private hearing of cases. A bill appropriating surplus cash of the State at the rate of $1,000,000 a year for two years, for allocation among school districts for the purpose of assisting these in constructing school buildings, was enacted. A State school tax board of appeals was created, and an appropriation of $2,500,000 a year was made toward the expense of running the schools of the State. The Legislature adjourned April 9.

Political and Other Events. In pursuance of a new law, the courts of the State began in May the practice of hearing divorce actions in private, and news of the court proceedings in these cases was confined to the names of the parties divorced and of the causes for which decree was granted. The deepening and widening of the Chesapeake and Delaware Canal by the Federal Government was completed and the enlarged canal was formally opened, to form an integral part of the 1500 mile coastal inside waterway system. Exercises were held at Reedy Point, May 14. The Market Street Bridge over the Christiana River at Wilmington, a steel decked bascule costing over $500,000, was completed, and was dedicated November 11. Meetings were held to promote the proposed construction of a bridge across the Delaware River to connect Wilmington with New Jersey directly. Members of the Del-Mar-Va Eastern Shore Association voted in October to continue the life of that tri-State regional improvement body after the close of 1927.

Officers. Governor, R. P. Robinson; Lieutenant Governor, J. H. Anderson; Secretary of State, Charles H. Grantland; Treasurer, Howard M. Ward; Auditor, Edward Baker; Attorney General, C. A. Southerland; Commissioner of Insurance, James G. Shaw; State Bank Commissioner, Harold W. Horsey.

Judiciary. Chancellor, Josiah O. Wolcott; Chief Justice, James Pennewill; Associate Judges, Richard S. Rodney (at large), Herbert L. Rice, William Watson Harrington, Charles S. Richards. See Women in Industry.

DELINQUENCY. See Child Welfare.

DE MOLAY, Order of. A non-sectarian secret organization for young men between the ages of 16 and 21; founded in March, 1919, by Frank S. Land, at Kansas City, Mo., and named in honor of Jacques De Molay, the last military Grand Master of the Knights Templar. The members are pledged to the precepts of love of parents, reverence, patriotism, cleanness, courtesy, comradeship, fidelity, and to the promotion of the public school system. Certain obligatory days are observed. Conclaves are held in each state annually. The Order is governed by a Grand Council of Freemasons, while the chapters are sponsored by Masonic bodies. In November, 1927, there were 1652 chapters, 250,000 members, and more than 100,000 De Molays who had outgrown active membership. In August, 1927, the International De Molay Alumni was organized, and in November, 1927, numbered 45 chapters and about 10,000 members who were former De Molays. The headquarters of the Order are in its own building, The Shrine of Youth, at 210 Armour Boulevard, Kansas City, Mo. Frank S. Land, the founder, was Grand Scribe of the Order.

DEMONSTRATION WORK. See AGRICULTURAL EXTENSION.

DENISON UNIVERSITY. A coeducational Baptist institution of higher education at Granville, Ohio; founded in 1831. The enrollment for the autumn of 1927 was 908. The faculty numbered 70. The net income for the year was $142,874. The library contained 60,000 volumes. The inauguration of Avery Albert Shaw, A.M., D.D., as president of the University, occurred on Oct. 21, 1927, and was attended by 96 official representatives from the various colleges and universities of the United States. The subject of Dr. Shaw's inaugural address was "A Christian College of Liberal Arts." Definite plans were made by the board of trustees for the erection of a new library, an administration building and a hospital.

DENMARK. The smallest of the three Scandinavian states; comprising the peninsula of Jutland with its adjacent islands in the Baltic, the Faroe Islands, a part of Schleswig as a result of the plebiscite of 1920 under the terms of the Treaty of Versailles, and Greenland (q.v.), the only colony or possession. Iceland is a free sovereign state, but united to Denmark in the person of the King of Denmark who is also head of the government of Iceland (q.v.). Capital, Copenhagen.

AREA AND POPULATION. The area is 16,568 square miles, including the Faroe Islands, which have an area of 540 square miles; population, according to the census of Nov. 5, 1925, 3,434,555. North Schleswig, which voted in the plebiscite of 1920 to form a part of Denmark, had an area of 1502 square miles and a population in 1925 of 176,433. The islands in the Baltic had an area of 5133 square miles and a population of 1,575,533 in 1925. Of the population more than 95 per cent were born in Denmark. The movement of population in 1925 was: Births, 71,897; deaths, 37,083; marriages, 25,786; emigrants (chiefly to the United States and Canada), 4578. The population of Copenhagen in 1925 was 587,150; with suburbs, 731,496. Other large cities with their 1925 populations are Aarhus, 76,226; Odense, 52,376; Aalborg, 42,812; Horsens, 28,135; and Randers, 26,856.

EDUCATION. Elementary education is free and compulsory between the ages of 7 and 14. In 1925 there were 4491 lower schools; of these 34 were maintained by the government, 3847 by the local communities, and 610 were private institutions. The number of pupils in the 4491 schools was 495,952. For higher education there is the University of Copenhagen with about 120 professors and teachers and 4000 students. There are also many popular high schools, agricultural schools, training schools for teachers, and other technical and special institutions.

PRODUCTION. Of the total area of Denmark, 80 per cent is productive; about one-sixth of the unproductive area is peat bogs. Of the productive area 6 per cent is forest, and of the remainder less than one half is arable, and the remainder pasture and meadows. The accompanying table from the *Statesman's Year Book* for 1927 shows the acreage and production of the principal crops in 1925:

Crops	*Area 1925 Acres*	*Production 1925 Tons*
Wheat	197,806	265,290
Rye	530,087	849,155
Barley	744,469	796,320
Oats	1,099,523	955,629
Mixed grain	560,466	507,668
Potatoes	186,091	1,310,900

On July 15, 1926, there were in Denmark 548,448 horses, 2,839,531 head of cattle, 235,000 sheep, 3,034,000 swine, and 17,700,000 hens.

COMMERCE. According to the U. S. Bureau of Foreign and Domestic Commerce, Denmark's foreign trade in 1926 showed a considerable decrease as compared with the preceding year. Imports dropped from 2,082,000,000 crowns to 1,621,000,000, and exports (including reëxports) from 1,959,278,000 crowns to 1,514,580,000 crowns. This marked decrease was more apparent than real, however, being largely due to the appreciation of the crown. The accompanying depression in industry, which in turn lessened the demand for many products of foreign origin, also contributed to reducing imports. Denmark's leading imports also decreased in quantity during 1926 as compared with 1925. This was especially true of agricultural raw materials.

DENMARK'S LEADING EXPORTS DURING 1925 AND 1926

Commodity		*1925*	*1926*
Live cattle	number.	81,000	156,000
Hogs	do...	13,000	18,000
Bacon	metric tons	191,500	190,200
Pork, fresh	do...	2,000	2,600
Beef, and veal, fresh	do...	26,000	16,000
Casings	do...	7,500	8,500
Cheese	do...	8,500	7,000
Butter	do...	122,000	131,000
Eggs	2,000..	403,000	416,000
Grain, unground	metric tons	62,000	104,000
Portland cement	do...	266,000	331,000

DENMARK'S LEADING IMPORTS DURING 1925 AND 1926

[*In metric tons*]

Commodity	*1925*	*1926*
Coal and briquettes	3,336,000	3,104,000
Coke and cinders	683,000	826,000
Fuel oils	276,000	341,000
Oil cakes and oil-cake flour	794,100	712,100
Corn	456,600	385,300
Rye and wheat	339,200	271,400
Barley and oats	106,100	71,000
Fertilizer	67,282	67,712
Metals and manufactures thereof	273,903	281,190
Groceries	71,254	71,005
Spinning stuffs and yarn	26,599	25,900
Textiles	19,756	22,061

Great Britain and Germany have long been Denmark's best foreign markets for agricultural produce. As in 1925, all of the live cattle exported during 1926 were shipped to Germany. Of the fresh beef and veal exported, Germany took 14,000 metric tons as against 24,000 tons in 1925, whereas Great Britain took only 1500 and 1800 metric tons, respectively. The crown value of agricultural products exported from Denmark during 1926 was, however, much lower than in 1925, the totals being 1,038,000,000 and 1,344,000,000 crowns respectively. The rise in the value of the crown and the unsatisfactory prices in the English market were responsible for this decline. Most of Denmark's imports are supplied by Germany, the United States, and Great Britain in the order named. Germany's share of Denmark's 1926 trade, on the percentage basis, increased over 1925 about as much as that of Great Britain fell off, while that of the United States showed practically no change. Great Britain was by far Denmark's leading export market during these years; Germany was second, and the United States was of minor importance. The drop of England's share in Denmark's total imports from 14.7 per cent in 1925 to 11.4 per cent in 1926 was attributable largely to the English coal strike, which made it necessary for Denmark to purchase her coal in other markets.

Finance. The Danish post-war budgets of recent years have shown a deficit, although a diminishing one, following decreased earnings in business and industry and relatively large expenditures necessitated by such extraordinary demands as unemployment doles and State intervention in banking reconstruction and exchange stabilization. New domestic sources of revenue have been found, however, in the restaurant tax, the automobile tax, and the luxury import duties, and in the development of north Schleswig; also foreign sources have been drawn upon for new loans. The accompanying table from the *Statesman's Year Book* for 1927 is an abstract of the budget estimates for the fiscal year 1927–28:

Current revenue	*Kroner*
Debit balance of domain revenues	1,407,448
Debit balance of State undertakings	14,378,876
Interest (net)	9,348,648
Balance of funds, etc.	638,184
Direct and indirect taxes	341,923,269
Balance of lotteries	2,537,256
Separate revenues	2,919,965
Total current revenue	341,580,993
Current expenditure	*Kroner*
Civil list and appanages	1,072,000
Rigsdag	2,280,000
Council of State	483,773
Ministry of Foreign Affairs	5,425,411
Ministry of Ecclesiastical Affairs	3,743,011
Ministry of Public Instruction	64,728,685
Ministry of Justice	17,886,367
Ministry of Interior	77,817,311
Ministry of Labor	56,566,004
Ministry of Agriculture	12,380,319
Ministry of War	29,599,392
Ministry of Marine	18,810,268
Ministry of Finance	28,865,387
Ministry of Public Works	7,700,701
Ministry of Industry, Commerce and Navigation	4,884,085
Greenland	....
Pensions	18,488,098
Total current expenditure	340,225,712

Communications. The 1926–27 statement of the Danish State Railways revealed a deficit of 22,400,000 crowns as compared with 29,200,000 crowns in the previous year. The somewhat better financial result during 1926–27 was attributable to a reduction in operating expenses (approximately 16,200,000 crowns), in that operating revenues—of which only the postal service had shown an increase—decreased by approximately 9,300,000 crowns as compared with the preceding year. The marked decrease in operating expenses was owing chiefly to the reduction in wages and fuel for the locomotives, ferries, and ships operated by the State Railways. The cause for the sharp drop in operating expenditure was found in the reduction of 4,500,000 crowns in passenger traffic, which again was attributable to the general depression prevailing in Denmark, as well as to competition from other forms of traffic. General freight and cattle shipments showed a decrease of 4,500,000 crowns which was partly because of competition from other forms of traffic and partly for other causes, such as hoof-and-mouth disease.

In spite of the British coal strike, fuel prices were considerably lower than in the preceding late years. The purchase price of coal averaged 23 crowns per ton as compared with 26 crowns the preceding year. The ever-increasing number of privately owned motor cars, more than the increase in motor-bus traffic, was responsible for the heavy decline in passenger traffic. The total railway mileage of the country was approximately 3148 miles, of which 1505 belonged to the State. In 1925, 29,429 vessels of 9,636,000 tons cargo entered the Danish ports from foreign countries, and 30,649 vessels of 9,600,000 tons cleared.

Government. Executive power is vested in the king who acts through a responsible ministry, but who has no power to declare war or make peace without the consent of the Rigsdag, or parliament, and the legislative power is vested in the Rigsdag, which is composed of the Folketing (lower house) and the Landsting (upper house). The Folketing has 149 members, of whom 117 are elected on the basis of proportional representation and the remainder divided among the parties not having obtained sufficient returns at the district elections; the Landsting has 76 members, elected indirectly by the voters for the lower house. King in 1927, Christian X (born Sept. 26, 1870), who succeeded his father, Frederik VIII on May 14, 1912. The ministry as appointed Dec. 14, 1926, was as follows: President of the Council and Minister of Agriculture, Th. Madsen Mygdal; Foreign Affairs, L. J. Moltesen; Interior, O. C. Kragh; Health, V. Rubov; Justice, S. Rytter; Defense, S. Brorsen; Public Instruction, J. Byskov; Ecclesiastical Affairs, F. Brunn-Rasmussen; Public Works, J. P. Stensballe; Finance, N. Neergaard; Industry, Commerce and Navigation, M. Slebsager.

History. During the summer the upper house of the legislature definitely rejected the disarmament proposal which had been before the country for some time. It was originally passed by the lower house in March, 1926, and provided for the abolition of the army and the establishment of a sort of militia, the razing of the fortifications, the repeal of general conscription, and the limiting of the navy to merely guarding the home waters. The government which introduced the measure originally went out of power at the end of 1926. (See preceding Year Book.) Some mention was also made during the year of the Schleswig question, the discussion being based on the allegations that Germany was using propaganda to regain political control of the territory she lost through the plebiscite. The government took no official action on the complaints. A similar situation is found in the districts of Eupen and Malmedy in Belgium.

DENNING, Joseph M. Former United States Consul General at Tangier, Morocco, and a Roman Catholic priest, died at Cincinnati, Ohio. July 26. He was born at Cincinnati, Apr. 19, 1866, and after graduating from St. Xavier's College in that city in 1887 received the degree of A.M. in 1890. He was ordained priest in

1891, after studying at the Seminary of St. Mary of the West. He held pastorates in Cincinnati, Oxford, Hillsboro, and Marion, Ohio, from which place he was appointed by President Harding diplomatic agent and consul general at Tangier, Feb. 10, 1922. He was the first Roman Catholic priest to hold a consular or diplomatic post of the United States, receiving for the purpose an indefinite leave of absence from Archbishop Henry Moeller of Ohio. For two years he had an interesting experience in the diplomatic service at a time when the great powers of Europe—France, Spain and Great Britain—were in rivalry in Morocco; and while he was successful, largely through his shrewdness and good humor, he did not find diplomatic life entirely congenial, and retired from the service May 1, 1924.

DENVER, UNIVERSITY OF. An institution of higher education at University Park, Denver, Colorado; founded in 1864. The registration for the autumn term of 1927–28 totaled 3169, distributed as follows: College of Liberal Arts, 1197; School of Dentistry, 124; School of Law, 77; City College, 541; School of Commerce, 756; School of Pharmacy, 26; School of Engineering, 141; Summer Session 1927, 838. The faculty had 168 members. The library contained more than 50,000 volumes. Chancellor, Wilber Dwight Engle, Ph.D., Sc.D., LL.D.

DE PAUW UNIVERSITY. A coeducational institution of higher education at Greencastle, Indiana, under the auspices of the Methodist Episcopal Church; founded in 1837. For the autumn session of 1927 the enrollment was 1616, including 894 men and 722 women. Of this number 1434 were registered in the College of Liberal Arts and 182 in the School of Music. In the summer session of 1927 there were 210 students. The College of Liberal Arts had a faculty of 90 and the School of Music, 16. During the year 16 new faculty members were appointed as follows: a dean of the college; a secretary of the faculty; a registrar; a professor of psychology; a professor of sociology; an associate professor of economics; an assistant professor of economics; and nine instructors. The productive funds of the university were $4,746,103; the income from endowment was $153,152, and the total income for the year was $480,120.89. Longden Hall, a dormitory for men, was completed and occupied at the beginning of the semester. Lucy Rowland Hall, a dormitory for women, was also constructed. A new heating plant was installed. Additional funds totaling more than $650,000 were received for the endowment of the Rector Scholarship Foundation. The library contained 62,809 volumes. President, Lemuel Herbert Murlin, LL.D.

DERBY. See RACING.

DESTROYERS. See VESSELS, NAVAL; NAVAL PROGRESS.

DETROIT, UNIVERSITY OF. An institution of higher education at Detroit, Mich., under the auspices of the Roman Catholic Church and conducted by the Jesuit Fathers; founded in 1877. In the autumn of 1927 there were 2494 students registered for the college courses, distributed as follows: arts and science, 572; engineering, 813; commerce and finance, 904; law, 205. In addition, there were 365 students enrolled for the high school course. In the summer session 142 students were enrolled. The faculty numbered 196. The productive funds in 1927 totaled $594,159.84. There were 46,000 volumes in the library. The following new buildings were completed during the year: faculty residence, power house, engineering building, commerce and finance, chemistry, and science buildings, and Soldiers' Tower. President, the Rev. John P. McNichols, S.J., Ph.D., LL.D.

DETROIT INSTITUTE OF FINE ARTS. See ART MUSEUMS.

DIABETES. Now that this disease has been partially conquered through the ability to regulate blood sugar production by diet, and more recently by the discovery of insulin, one expects to see more attention bestowed on individual aspects of the malady. In the *Journal of the American Medical Association* for Aug. 27, 1927, Dr. Leman of New Orleans presents the subject of diabetic gangrene, a complication which had not been considered as of unusual importance. Dr. Joslin, an extensive writer on diabetes, found only an incidence of 3 per cent in a material of 2000 cases and added that of this number 90 per cent might have been prevented by good foot hygiene, including daily bathing. It follows that in the older and poorer strata of population there should be a higher incidence, and in certain public institutions such as the Boston City Hospital, the percentage had reached 11 or more. In New Orleans for some unknown reason some clinics showed as high as 14 per cent among whites, 18 per cent among all patients and 21 per cent among the negroes alone. In discussing this paper Dr. Allen pointed out that diabetes caused gangrene only indirectly—that is by setting up hardening of the arteries of the lower extremities—and that the incidence must vary with the amount of arteriosclerosis as well as with the presence or absence of good foot hygiene. If we regard this complication merely as determined by the arteries diabetic gangrene is only a precocious senile gangrene.

DIAMONDS. In 1927 the United States imported rough or uncut diamonds to the amount of 237,005 carats valued at $114,700,226, as compared with 236,953 carats valued at $113,070,767, in 1926. Diamonds cut but not set, to the amount of 445,571 carats, valued at $40,736,351, were imported, as compared with 555,363 carats valued at $51,361,942 in 1926. As usual the Netherlands and Belgium were the principal sources of supply, the 1927 imports from these two countries being 22,849 carats valued at $21,316,729 and 197,024 carats, valued at $15,972,533 respectively.

The Union of South Africa continued to be the most important producer of diamonds and it was stated that the production and sales of January to August, 1927, inclusive, amounted to 2,808,165 carats of a value of £8,561,014. The Lichtenburg Fields of the Western Transvaal experienced considerable expansion during the year and their activity was such as to occasion fear of the future stability of the diamond market and doubt whether the production could be absorbed by the purchasing syndicates which had controlled the market. Early in the year what was stated to be the greatest rush ever witnessed in South Africa occurred after the proclamation of the farm Grasfontein, and a further proclamation of the farm Welverdiend also attracted a number of miners. A striking discovery of diamonds was reached at Alexander Bay to the South of the mouth of the Orange River and a parcel of about 12,000 carats.

amounting in value to approximately £150,000, was recovered in a few weeks. See CHEMISTRY, INDUSTRIAL.

DICKMAN, JOSEPH THEODORE. Major General, United States Army, died at Washington, D. C., October 23. He was born at Dayton, Ohio, Oct. 6, 1857, and graduated from the United States Military Academy in 1881, being commissioned second lieutenant in the Third Cavalry. He was an honor graduate of the Infantry and Cavalry School in 1883 and served in the cavalry through successive grades until 1917, when he was made brigadier general. As a first lieutenant in the Third Cavalry he was one of a band engaged in the pursuit of the Apaches led by Geronimo, and he served for several years along the Rio Grande. At the outbreak of the Spanish-American War he was assistant instructor at the Infantry and Cavalry School. During the war and the Philippine Insurrection he saw extended service and received rapid promotion, becoming chief of staff for General Adna R. Chaffee, who commanded the American forces in the Boxer uprising in China in 1900. After further service as military instructor and on staff duty at Washington, he took command of the Second Cavalry at Fort Ethan Allen in Vermont, remaining there until the entry of the United States in the World War, when he was promoted to brigadier general in the regular army and major general in the national army. Going abroad with the American Expeditionary Forces, he participated in every major engagement of the American troops. Later, as commander of the Third American Army, he led the army of occupation into Coblenz, Germany, where he was in command until the spring of 1919. On his return to the United States he commanded the Eighth Corps Area, with headquarters at Fort Sam Houston, Texas, and retired on Oct. 5, 1921, after completing 45 years of service. He received the Distinguished Service Medal of the United States, the Croix de Guerre of France, and the Order of Leopold of Belgium. He also was made a Commander of the Legion of Honor in France and a Knight Commander of the Bath in England. He received the degree of LL.D. from the University of Vermont in 1916 and a similar degree from the University of Dayton, Ohio, in 1923. In addition to being active as a soldier he was a profound student of military science and wrote extensively. He was an authority on the American cavalry drill and service regulations, and translated Von der Goltz's *Conduct of War.* He served as military aide to Prince Henry of Prussia, brother of the former Kaiser, during the visit of the prince to the United States in 1902. Shortly before his death General Dickman published *The Great Crusade,* in which he advanced original opinions and criticisms as to the conduct of the War and asserted that many American lives were sacrificed at Belleau Wood by French generals.

DICTIONARIES. See PHILOLOGY, MODERN.

DIETETICS. See FOOD AND NUTRITION.

DILLON, JOHN. Irish politician and agitator, died in London, England, August 4. He was born in Dublin in 1851, the son of John Blake Dillon, a member of the British Parliament for Tipperary. He was educated at the Catholic University of Dublin and studied medicine, becoming a member of the Royal College of Surgeons. He was one of the leaders of the "Young Ireland" movement. Following the guidance of Parnell in the Nationalist Party, Dillon entered political life and in 1880 was elected to Parliament from his father's constituency. In the House of Commons he immediately became a leading figure among such Irish members as Sexton, O'Brien and Biggar, and by many was considered second in importance to Parnell only, whose leadership he followed loyally. In 1881, after making a speech at Kildare to the Land League in which he advocated boycotting, he was arrested by the British government under the coercion act, and remained in prison for three months He was again arrested in the same year. He continued as an important Irish leader, but in 1883 he was compelled to retire from Parliament on account of ill health. In 1885 he was elected for Mayo East, a constituency he represented for many years. He promoted the "plan of campaign" under which Irish tenants paid rent to the Land League instead of to their respective landlords, and this led again to his arrest, though he was released through a disagreement of the jury. In 1888 he was convicted under a new law and sentenced to six months' imprisonment, but before the expiration of the term he was released on account of ill health. He visited Australia and New Zealand, collecting funds for the Land League, and on his return to Ireland he was once more arrested, and released on bail. He went to America, forfeiting his bail, and after his return to Ireland by way of France was confined for a time in Galway jail with other Irish leaders. Dillon and William O'Brien became, after the Parnell-O'Shea scandal, leaders of the anti-Parnellite faction, and in February, 1896, after the expulsion of Timothy Healy and others, Dillon became chairman of the Irish National Federation, succeeding Justin McCarthy. He held this position until 1899. In 1896 he organized a world's convention of the Irish race, attended by some 2000 delegates. In the following year he opposed in Parliament the address to Queen Victoria on her diamond jubilee, on the ground that her reign had not been beneficial to Ireland. In 1901 he opposed a grant to Lord Roberts, charging him with "systematic inhumanity" in the Boer War. Mr. Dillon, who in 1900 had accepted tne leadership of John Redmond over the reunited Irish party, continued his political activity until March, 1918, when he succeeded Redmond as head of the Irish Nationalist Party. His career in the House of Commons was marked by vigorous activity, and in 1902 he was suspended for epithets directed against the Colonial Secretary, Joseph Chamberlain. In that year he denounced the British government for reviving the crimes act, and he helped to forward the Wyndham land purchase act. In 1909 he was active in defending the cattle-driving policy, and later was opposed to the militant methods of the English and Irish "suffragettes." He criticized the British expenditures for naval maintenance in the year before the World War, but at the opening of that contest he favored Irish participation, although in Parliament he opposed compulsory service for Ireland on the ground that the Irish were a free people and should not be conscripted. In 1916, after the Dublin uprising, he accused the government of using military methods in suppressing the Sinn Feiners, and in 1918, as head of the Nationalist Party, he brought forward a resolution to the effect that the Irish policy of the government was not consistent with the principles for which the Allies were fighting. At the general election of December, 1918, with other Nationalists who experienced the vengeance of the Sinn Feiners, he lost his seat in the House of Commons and from that time he passed from view as an active political leader, though he actively discussed the Home Rule question. In 1925 he declared that the Dail was bankrupt and that the former oppression of England was no worse than existing conditions. He criticized the Free State government and the maintenance of the Free State army, but failed to enlist any general support of his policy.

DILLON, John Francis. United States Radio Commissioner, died at San Francisco, Calif., October 9. He was born at Bellevue, Ohio, Mar. 6, 1886, and, after engaging in various callings, in 1894 enlisted in the Signal Corps of the United States Army. He served various enlistments, and in 1904 became master electrician, and later was placed in charge of the electrical laboratory of the Signal Corps. In October, 1912, he became radio inspector in the Department of Commerce and Labor, and was placed in charge of the Eighth Radio District, with headquarters at Cleveland. In 1917, at the entrance of the United States into the World War, he was commissioned a captain in the Signal Corps, and he served in France until 1919, having been promoted to major during the period of hostilities. In April, 1919, he was discharged from active service, again becoming radio inspector, and in May, 1923, he was made supervisor of radio for the Sixth District, being later appointed radio commissioner for the Fifth Zone.

DIPHTHE'RIA. According to the *Weekly Bulletin of the City of New York Health Department* for Sept. 10, 1927, there was an increase in the incidence and mortality of diphtheria during the first half of the year. Despite the increase in population there had been a progressive decline of the incidence from 14,014 cases in the Greater City in 1919 to 7531 in 1926, while the deaths declined from 1239 to 477 during the same period. This decline was attributed largely to the campaign of the Department of Health, which included efforts at immunization with toxin-antitoxin, although it was admitted that the changes in the rate of incidence were governed in part by factors which are quite unknown. In the city of Berlin, for example, a similar increase was reported for the year.

The question of the greatest importance was the relation between the new cases and the immunizing effort. Of a series of 150 children who developed diphtheria in 1927 it was learned that only a few, amounting to 2 per cent of the whole, had received the immunizing injections, and that but one of these had been completely immunized by the three injections required. There was therefore every reason to go ahead with the toxin-antitoxin immunizing campaign.

DIRIGIBLES. See Aëronautics; Military Progress.

DISARMAMENT. See League of Nations; Military Progress; Naval Progress.

DISCIPLES OF CHRIST. A communion known also as the Churches of Christ and sprung from a movement for Christian unity, which arose in American Presbyterian circles at the beginning of the 19th century, under Barton W. Stone in Kentucky and Thomas and Alexander Campbell in Western Pennsylvania. This is the largest religious body having its origin in America. It was fifth among Protestant communions in the United States in 1927. In polity the churches are congregational. There were five major agencies of this communion in 1927: The United Christian Missionary Society; Board of Education; Board of Temperance and Social Welfare; Association for the Promotion of Christian Unity; and the missionary societies of the several states and of the provinces of Canada. These agencies are related in an advisory way to the International Convention of Disciples of Christ, which meets annually in May. The general missionary work of the churches is organized under the United Christian Missionary Society, with headquarters at 425 DeBaliviere Avenue, St. Louis, Missouri. Its board of managers of 120 is composed of an equal number of men and women. The foreign missionary work in 1927 embraced the Belgian Congo, Africa, China, India, Jamaica, Japan, Mexico, Philippine Islands, Porto Rico, Argentina, Paraguay, and Tibet (Batang, on the border). At the end of the year the Society had almost completed a thorough survey of the work throughout the world.

During 1927 there were 5230 baptisms in foreign fields, a gain of 557 over 1926. The 560 foreign day schools had a total enrollment of 19,134. The 18 hospitals and 24 dispensaries treated 417,170. The church erection fund amounted to $2,510,682.06. Appropriations for pastoral support were made to 141 home missions churches. The Society maintained Bible chairs in four State universities. Work was conducted among the French, highlanders, immigrants, Indians, Negroes, Orientals, Spanish-Americans, and Mexicans. The department of benevolence maintained six homes for children, six homes for the aged, and one hospital. The Men and Millions Movement reported paid pledges amounting to $91,222.22 during the year, bringing the total up to $5,993,469.08. In 1927, 25 colleges coöperated with the Board of Education. The imperative need for ministerial pensions brought about the creation of a commission to study the field.

Statistics of the communion for 1927 showed a total church membership throughout the world of 1,573,263 and in the United States and Canada, 1,481,376. Bible school enrollment for the world was 1,198,608; number of churches throughout the world, 9374. The total number of preachers in the United States and Canada was 7274. Contributions reported in the United States and Canada for the fiscal year totaled $4,087,792.55. Among the periodicals published by the communion are: *World Call; Christian Evangelist; Christian Unity Quarterly.* The International Convention had as its president for 1927–28, E. S. Jouett Vice President and General Counsel of the Louisville & Nashville Railroad, Louisville, Ky. The president of the United Christian Missionary Society was the Rev. F. W. Burnham, St. Louis, Mo.

DISEASES OF ANIMALS. See Veterinary Medicine.

DISEASES OF PLANTS. See Botany.

DISINFECTANTS. See Chemistry, Industrial.

DIVORCE. See Marriage and Divorce.

DOLE, The Rev. Charles Fletcher. American clergyman, writer and educator, died at Boston, Mass., November 27. He was born at

Brewer, Me., May 17, 1845. He graduated at Harvard College in 1868 and at the Andover Theological Seminary in 1872. He was professor of Greek at the University of Vermont in 1873. From 1874 to 1876 he was minister of Plymouth Church, Portland, Me., and from 1876 to 1916 minister of the First Congregational (Unitarian) Church of Jamaica Plain, Mass. In the latter year he became pastor emeritus. He received the degree of D.D. from Bowdoin College in 1906. Dr. Dole was deeply interested in world peace, and was president of the Association to Abolish War. He was a voluminous writer on religious and civic topics, and wrote many books, among them being: *Early Hebrew Stories* (1886); *The Golden Rule in Business* (1895); *A Catechism of Liberal Faith* (1895); *The Coming People* (1897); *The Theology of Civilization* (1899); *The Religion of a Gentleman* (1900); *The American Citizen* (1902); *The Hope of Immortality* (1906; Ingersoll lecture, Harvard); *The Ethics of Progress* (1909); *The Coming Religion* (1910); *The Burden of Poverty* (1912); *The New American Citizen* (1918); *A Religion for the New Day* (1920).

DOLGORUKOFF, PRINCE PAUL DIMITRIEVICH. Russian patriot, died at Moscow, June 8. He was born about 1865, of a land-owning family possessing large estates, and always took active interest in public affairs. Before the revolution in 1905 he identified himself with the liberal group of the zemstvos, or county councils, and later was a prominent member of the Cadet party. At one time he was a member of the duma, but was more active in the politics of his own city of Moscow. He was at one time prominent in the pacifist movement, but once Russia had entered the World War he supported her cause, and participated with the Red Cross unit on the Galician front. After the Bolshevists secured power Dolgorukoff was arrested in Petrograd and imprisoned. Later he joined the White movement and then went with Wrangel to the Crimea. He lived in dire poverty in this exile and, becoming homesick in 1925, he returned, disguised as a peasant, to Russia. In the following year he again crossed the Russian frontier and wandered about southern Europe before he was detected and arrested. He was shot without trial, and was considered by many a martyr on account of his courage and patriotism and philanthropic ideas.

DOMINICA. See LEEWARD ISLANDS.

DOMINICAN REPUBLIC (SANTO DOMINGO). A West Indian state occupying the eastern part of the island of Haiti or Santo Domingo, the smaller part being occupied by the Republic of Haiti (q.v.). Capital, Santo Domingo.

AREA AND POPULATION. The estimated area is 19,332 square miles; population, according to the census of 1921, 897,405. The largest cities with their populations at that census were: Santo Domingo, 30,957; Santiago de Los Caballeros, 17,052; San Pedro de Macoris, 13,802; and La Vega, 6564.

PRODUCTION. Agriculture is the chief source of wealth, sugar cultivation being the chief industry. About 12,500 square miles of the total area are cultivable and about 3,000,000 acres are suitable for grazing. In the north central and eastern portions, tobacco, cacao, and coffee are grown, while the largest sugar plantations are in the southern part. The forest area is about 9,500,000 acres. By July 1, 1927, all the principal centrals of the republic had finished grinding, yielding for that grinding season, which commenced in December, 1926, a production of 339,946 short tons of raw sugar. In 1926 the tobacco crop was the poorest in years, the financial returns being $1,573,458 less than those received for the commodity in 1925. The coffee crop was the largest in the history of the country (total export, 4307 metric tons). The cacao yield was approximately 3000 tons below the normal crop and only 20,084 metric tons were exported as compared with 23,482 metric tons in 1925. Mineral resources of almost every kind are found to some extent within the Dominican Republic.

COMMERCE. Continuing the trend of trade since 1921, the 1926 balance of trade was favorable to the Dominican Republic, although somewhat smaller than that of 1925. The total trade in 1926 amounted to $48,573,404 as compared with that of the previous year which was $52,109,663—a decline of $3,536,259 in 1926. The balance of trade amounted to $1,218,338, but as the loss in value was distributed throughout both exports and imports, there was little relative change in the margin of exports over imports. Imports in 1926 amounted to $23,677,553 as compared with $25,339,052 in 1925, and exports were but $24,895,871 in 1926 as compared with shipments amounting to $26,770,611 in 1925. The decrease in total trade of $3,536,259 was largely accounted for by a decrease of $2,000,000 in purchases from the United States in 1926. In spite of this decrease, however, the United States retained its supremacy in the Dominican market and supplied over 60 per cent of the goods purchased by the republic, but the trade of the United States with the Dominican Republic was slowly and steadily declining. The following table shows the exports of leading products in 1925 and 1926:

EXPORTS OF MAJOR DOMINICAN PRODUCTS 1924, 1925, AND 1926

	1924		*1925*		*1926*	
Commodity	*Metric tons*	*Value*	*Metric tons*	*Value*	*Metric tons*	*Value*
Sugar	220,629	$21,682,556	301,106	$15,447,036	337,658	$14,699,618
Sugar cane	99,210	883,117	179,582	690,641	181,919	645,531
Molasses	62,888	415,277	78,030	731,057	102,015	559,714
Cacao	23,142	2,793,502	23,482	3,875,090	20,084	3,831,432
Leaf tobacco	15,760	2,279,314	22,260	2,765,484	9,754	1,192,026
Coffee	2,283	863,581	2,666	1,294,956	4,307	1,890,441
Woods	22,563	368,304	22,709	378,158	22,105	341,288

FINANCE. Figures from the Treasury Department, for the year 1926, give the receipts and expenditures as follows:

Receipts	
Receiver General of Customs	$4,608,799.65
Internal revenues	5,527,725.85
Lottery	2,235,690.00
Dominican Central Railway	299,070.05
Total	12,671,285.55
Balance on Dec. 31, 1925	1,608,089.44
Total	14,279,374.99

Expenditures

Receiver General of Customs	$295,284 56
Public Debt Service	2,985,977.99
General and special expenditures	8,216,639.34
Lottery	1,586,876.28
Dominican Central Railway	331,810.08
Total	13,416,588.25
Checks paid during the year and credits authorized	65,031.23
Total	13,481,619.48
Balance on Dec. 31, 1926	797,755.51
Total	14,279,374.99

The budget for the year 1927 placed the revenues at $11,700,250. The public debt on Jan. 1, 1927, was $15,000,000 or an increase of $3,825,545 over that of the preceding year.

COMMUNICATIONS. In 1925, 2020 vessels of 2,304,535 tons entered the ports of the republic, and 1511 vessels of 1,856,218 tons cleared. There are two railway systems in the republic, the Dominican Central Railway (for which no information was available) and the Samana and Santiago Railway, a private Scotch-owned line, which runs from Sanchez to La Vega, with connections through Salcedo and Moca to Santiago and with a branch line to San Francisco de Macoris. Operating revenues of the latter line during 1926 amounted to $209,386 and other revenues to $762; operating expenses amounted to $233,047 and other expenses to $7861. The length of this railway totaled 80 miles. The rolling stock in operation comprised eight locomotives, 55 freight cars and eight passenger cars. No purchases were made during the year but rolling stock was reported in good condition.

GOVERNMENT. The republic is governed under a constitution adopted by the Constituent Assembly on June 13, 1924. Executive power is vested in a president and cabinet of seven ministers. The president is ineligible for a second successive term. The senators and deputies are elected for four years by direct popular vote. Each of the 12 provinces is represented by one senator and (in practice) by two deputies. President in 1927, Horacio Vasquez, who assumed office on July 12, 1924.

HISTORY. The revised constitution of the Dominican Republic, proclaimed June 16, extended the terms of President Vasquez, Vice President Volazquez and the members of congress from 1928 to 1930.

DRACHSLER, JULIUS. American sociologist and editor, died at Brown's Mills, N. J., July 22. He was born at Bella, Czechoslovakia. Sept. 5, 1889, and went to the United States in 1903. He graduated from the College of the City of New York in 1912, doing graduate work at Columbia University, where in 1921 he received the degree of Ph.D. He was naturalized in 1913, and for a number of years was interested in social service and educational activities. He was secretary of the faculty of the School for Jewish Communal Work, 1915–18, special expert with the Bureau of War Risk Insurance, 1918–19, and held positions in Jewish welfare and social research organizations. He was assistant professor of economics and sociology at Smith College, 1919–22, and in the latter year became assistant professor in sociology at the College of the City of New York. He wrote: *Democracy and Assimilation* (1920); and *Intermarriage in New York City* (1921)

DRAINAGE. See SOILS.

DRAKE UNIVERSITY. An institution of higher education at Des Moines, Iowa; founded in 1881. The number enrolled in the autumn of 1927 was 1728, distributed as follows: College of liberal arts, 621; commerce, 249; education, 362; law, 75; fine arts, 384; Bible, 96. The faculty numbered 90. The fixed endowment amounted to $1,266,770. The number of volumes in the library was 45,000. President, Daniel W. Morehouse, Ph.D.

DRAMA. See THEATRE and articles on LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; SCANDINAVIAN LITERATURE; SPANISH LITERATURE.

DREW, JOHN. American actor, died at San Francisco, Calif., July 9. He was born at Philadelphia, Pa., Nov. 13, 1853, the son of John Drew, Irish comedian, who died in 1862, and Louisa (Lane) Drew, actress, who died in 1897. He was educated by private tutors and at the Episcopal Academy, Philadelphia, Pa. On Mar. 23, 1873, he made his first appearance at the Arch Street Theatre, Philadelphia, as Plumper, in *Cool as a Cucumber*, in a company managed by his mother. He played with Edwin Booth, Fanny Davenport and other stars, in various rôles, until 1870, when he became leading man in Augustin Daly's company at Daly's Theatre, New York. Here he created many rôles and acted comedy parts in a pleasing and acceptable manner. In Daly's revivals of the classic comedies, such as *The Taming of the Shrew*, in which Drew took the part of Petruchio, and *The School for Scandal*, in which he was Charles Surface, his work was of a high order. In 1892 he began his career as a star, playing Dr. Paul Blondet in *The Masked Ball*, and Frederick Ossian in *The Butterflies* with Maude Adams. Others of his rôles were in: *The Squire of Dames* (1895–96); *Rosemary* (1896–97); *A Marriage of Convenience; One Summer's Day* (1897–98); *The Liars* (1898–99); *The Tyranny of Tears* (1899); *The Circle* (1921–23); as Sir Peter Teazle in a revival of *The School for Scandal* (1923); and in *Trelawny of the Wells* (1925). Mr. Drew throughout his life sought to uphold the best traditions of the stage, and in comedy parts he had few equals. His sister, Georgia Drew, was married to Maurice Barrymore, a celebrated actor, and was the mother of the well known players, Ethel, John and Lionel Barrymore.

DROPPERS. GARRETT. American economist and professor emeritus of political economy at Williams College, died at Williamstown, Mass., July 7. He was born at Milwaukee, Wis., Apr. 12, 1860, and after graduating from Harvard in 1887 pursued graduate studies in economics and finance at the University of Berlin for two years. In 1889 he became professor of political economy and finance at Tokio University, Japan, serving until 1898, when he became president of the University of South Dakota of which he was head until 1906. In 1907 he became professorial lecturer on political economy at the University of Chicago, and in 1908 professor of economics at Williams College, holding the latter chair until 1922, when he became emeritus professor. He was secretary of the Commission on Commerce and Industry of Massachusetts, 1907–08, and a member of the Massachusetts Civil Service Commission, 1913–14. From August, 1914, until 1920 he was American minister to Greece and

Montenegro. He wrote: *Economic History of the Nineteenth Century* (1923).

DUKE UNIVERSITY. An institution for higher education at Durham, N. C.; established in 1924 by the expansion of Trinity College, made possible through benefactions from James B. Duke, as described in the article on the University in the 1925 YEAR BOOK. The enrollment for the autumn of 1927 was 1638 and for the summer session 1395. In the autumn the faculty numbered 148, of whom 27 were new appointments. The endowment funds of the University amounted to $27,000,000, and the income for the year was estimated at $630,000. Up to the end of 1927 eleven new buildings had been completed, including a new library; the Union, constructed at a cost of about $1,000,000, for recreational and student activities; a chapel; five dormitories; a class room building, a science building, and a faculty apartment house for the use of single and married professors. Work was started on a forty-five hundred acre tract of land, a mile from the campus, on which will be located a group of forty or more buildings, built of native North Carolina stone of Cambrian formation, taken from a quarry owned by Duke University. Among the outstanding appointments to the teaching staff were: Dr. William McDougall, formerly of the department of psychology of Harvard University; Dr. W. S. Pearse, former head of the department of biology, University of Wisconsin; Dr. J. Fred Rippy, of the department of history of Chicago University; Dr. Wilburt Davison, assistant dean of Johns Hopkins Medical School, to become head of the Medical School to be started in September, 1929. Two members of the history department, Doctors E. M. Carroll and J. Fred Rippy, held Guggenheim Fellowships, which enabled them to do research work during a leave of absence granted by the University. The Angier B. Duke Memorial Loan Fund for students amounted to $450,000. President, William Preston Few, Ph.D., LL.D.

DUMBLE, EDWIN THEODORE. American geologist, died at Nice, France, January 27. He was born at Madison, Ind., Mar. 28, 1852, and graduated from Washington and Lee University. From 1887 to 1896 he was state geologist of Texas, and from 1897 to 1925 consulting geologist and manager of the oil properties of the Southern Pacific Company. He was also consulting geologist for the Pacific Oil Company, and had many clients among the oil companies in the southwestern part of the United States. He was a fellow of the Geological Society of America, the Texas Academy of Science and the American Association for the Advancement of Science, and a member of the American Institute of Mining Engineers, the Association of Petroleum Geologists, and other organizations of similar nature. He wrote; *Brown Coal and Lignite; Geology of East Texas,* and many reports on the geology and the mineral resources of Texas and Mexico.

DUNCAN, ISADORA. American dancer, was killed at Nice, France, September 14, in an automobile accident. She was born at San Francisco in 1880, and was for a time a dancing teacher at New York, where she attempted to revive classic dancing, having been trained by her sister Elizabeth, who had been on the stage. With a slender and well proportioned figure, Isadora was able to reproduce the grace and the poses of the figures on old Greek vases. Her efforts were not warmly received in America, but in London and on the European continent she became popular and established classes where girls of tender age were taught to dance according to her ideas. She was the first to popularize the barefoot dance, using simple, free draperies, and making it a distinct antithesis to ballet and toe dancing. She was able to interpret music by means of dancing, her method involving an economy of movement which served to illustrate the meaning of the music. In this way she devised dances interpretative of Beethoven, Gluck and Chopin. She lived for the most of her time in Paris. She married a young Russian poet, Serge Yessenin, with whom she visited the United States in 1922. Later she divorced Yessenin, who in December, 1925, committed suicide at Leningrad. Previously, in April, 1913, Miss Duncan's two children, Deirdre, aged six, and Patrick, aged three, with their nurse, were drowned in the Seine as the result of a motor accident. Miss Duncan shortly before her death had finished a volume of memoirs, *My Life,* which expressed her ideas of the dance and its relations to art, and it was published during the year.

DUNKERS OR DUNKARDS. See BRETHREN, CHURCH OF THE.

DUNN, ARTHUR WALLACE. American educator and Red Cross official, died at Washington, D. C., November 15. He was born at Galesburg, Ill., Mar. 12, 1868, and was graduated at Knox College; he also studied at the University of Chicago, and was a fellow in sociology at the latter institution, 1893–96. He was an instructor in English and lecturer in sociology, University of Cincinnati, 1896–98; extension lecturer, 1896–1900; head of the department of history and civics, Shortridge High School, Indianapolis, Ind., 1900–10; director of civic education in the public schools of Indianapolis, 1906–10; executive secretary of the Public Education Association, New York City, 1911–14; specialist in civic education, United States Bureau of Education, Washington, D. C., 1914–21; associate national director of the American Junior Red Cross, 1920–21, and national director from 1921. He wrote: *The Community and the Citizen* (1907); (with others) *The Teaching of Community Civics* (1915); *Social Studies in Secondary Education* (1916); (with Hannah Margaret Harris) *Citizenship in School and Out* (1920); *Community Civics and Rural Life* (1920); *Community Civics for City Schools* (1921).

DUPUY, du'pwē, PAUL JACQUES. French publisher, editor and statesman, died at Versailles, July 10. He was born at Paris in 1878, the son of Jean Dupuy, minister of agriculture in the Waldeck-Rousseau cabinet and the founder of *Le Petit Parisien.* The son studied law, and after being admitted to the bar became connected with his father's publishing enterprise, with which he was identified throughout his life. In 1910 he was elected deputy from the Argeles district, and in January, 1920, he took his father's place as senator from Hautes-Pyrénées. In 1925 he was elected secretary of the Senate. He was a member of the Commission of Foreign Affairs and of the Caillaux war debt commission which visited Washington in 1925 but failed to effect an agreement on the French debt to the United States. He was a chevalier of the Legion of Honor and a member of the Syndicat de la Presse Parisienne. *Le Petit Parisien* as developed by Senator Dupuy achieved a large circulation, being one of the most successful papers in the world. It was written without bias, presenting the news from a non-partisan standpoint, and incorporated many enterprising features. Senator Dupuy was interested in other publishing projects, among the magazines he controlled being *Excelsior*, an illustrated daily newspaper; *Science et Vie; d'Omnia; du Miroir des Sports; de l'Agriculture Nouvelle;* and *de Nos Loisirs.* Politically, Senator Dupuy was a supporter of the bloc nationale and Premier Poincaré, wielding his influence in the support of the premier against the left wing of Socialists and Communists and the right wing of Monarchists and Fascists. He brought to his various public enterprises many original ideas and adapted modern methods to them.

DUTCH EAST INDIES. A possession of the Netherlands in the East Indies, comprising the territory of Dutch East India and consisting of the group of islands in the Pacific lying between 6° N and 11° S, and between 95° and 141° E longitude. Capital, Batavia.

Area and Population. The usual method of dividing the colony is as follows: (1) Java and Madura, divided into 17 residencies, each under a resident and several assistants at the head of a large number of native officials; (2) the Outposts, consisting of Sumatra, Borneo, Celebes, a part of New Guinea, the Molucca Archipelago, the Sundra Islands and other small islands. under functionaries variously entitled governor, resident, controller, etc. The area is estimated at 733,642 square miles; population, according to the census of 1920, 49,350,834. In the same year the Europeans numbered 169,708, and the Orientals, other than native, 876,506, mostly Chinese and Arabs, The estimated population on Dec. 31, 1925, was 51,013,878.

Production. The harvested area under various native crops (first and second) in Java and Madura was in 1925 as follows: in acres; Irrigated rice, 7,191,464; non-irrigated rice, 950,683; maize, 3,949,548; cassava, 1,813,594; sweet potatoes, 366,583; groundnuts, 461,656; soya beans, 456,181; other pulses, 451,927; tobacco (native), 343,089; other secondary crops 1,353,251; total, 17,337,976. In the same year, the harvested area of "other secondary crops" were potatoes, 42,443 acres; native sugar cane, 39,393 acres; indigo, 13,714 acres; and capsicum, 121,612 acres. The area under sugar was 435,595 acres; the total production, 2,299,875 tons; and the factories engaged in this industry, 179. The amounts of other products were: Coffee, 61,153 tons; rubber, 106,106,000 kilos; cinchona, 10,719,000 kilos; tobacco, 56,682,000 kilos; tea, 52,682,000 kilos; cacao, 745,000 kilos; and oil palms, 8,739,000 kilos of oil. The total yield of the tin mines worked by the government and private concerns in 1925 was 32,474 metric tons. In the same year the yield of the principal coal mines in Java, Sumatra, and Borneo was 1,400,727 tons. While the greater part of the soil of Java is claimed by the government, private estates are found chiefly in the western part, and mainly in the hands of the Europeans and Chinese.

Commerce. The following table published by the U. S. Bureau of Foreign and Domestic Commerce in September, 1927, gives the latest available statistics on trade:

TEN LEADING COMMODITIES IN THE EXPORT AND IMPORT TRADE OF THE DUTCH EAST INDIES

[*Values in thousands of florins*]

Exports	*1924*	*1925*
From Java and Madura:		
Sugar	489,960	367,280
Rubber and guttas	61,820	142,190
Tea	80,680	63,620
Tobacco	30,920	36,780
Coffee	36,080	35,800
Fibres	27,230	27,840
Tapioca and products	20,430	15,600
Cinchona bark and quinine	14,360	12,770
Copra	17,690	9,290
Pepper	8,560	8,800
All other	112,860	117,200
Total	900,590	837,170
From Outer Possessions:		
Rubber and guttas	140,810	444,350
Petroleum and products	155,750	171,150
Copra	79,720	93,100
Tobacco	92,710	73,690
Tin and tin ore	35,180	32,980
Coffee	29,500	32,430
Crude tanning and dyeing materials	14,370	19,400
Pepper	12,110	15,660
Tea	12,900	10,750
Agave fibre	8,100	8,110
All other	48,870	46,000
Total	630,020	947,620
Imports		
Into Java and Madura:		
Textiles and yarns	152,330	197,760
Foodstuffs, except rice	69,480	72,440
Rice	34,010	34,770
Machinery and tools	28,260	29,910
Iron and steel and manufactures	26,160	26,880
Cigars, cigarettes, and tobacco	19,260	17,510
Fertilizers	19,780	15,750
Wearing apparel	10,040	12,690
Pottery and glassware	8,910	11,060
Motor cars	6,000	9,510
All other	92,300	102,690
Total	466,530	530,970
Into Outer Possessions:		
Textiles and yarns	45,910	69,890
Rice	29,640	40,090
Foodstuffs, except rice	27,950	38,240
Iron and steel and manufactures	21,830	25,680
Cigars, cigarettes, and tobacco	19,390	23,260
Machinery and tools	13,140	17,220
Wearing apparel	4,200	6,560
Motor cars	1,890	5,840
Pottery and glassware	8,910	5,300
Tin and manufactures	4,530	5,110
All other	39,350	50,210
Total	211,740	287,400

Finance. The budget for the Dutch East Indies for the year ending Dec. 31, 1928, called for total revenues of 747,554,315 florins and expenditures of 793,066,696 florins, leaving a deficit of 45,522,381 florins. The ordinary revenues were estimated at 742,617,257 florins and ordinary expenditures at 739,862,325 florins. Extraordinary revenues were expected to yield 4,927,058 florins, while extraordinary expenditures were estimated at 53,204,371 florins. The estimated revenues for 1927 were 701,093,925 and the expenditure, 759,427,788. The public debt on Dec. 31, 1926 was 1,089,426,846 guilders.

Communications. The railroads of the Dutch East Indies are divided into two groups, the State railways and those privately operated by incorporated companies. Of the privately owned railways, the Netherlands East Indian Railway in Middle Java is the most important, and is composed of a number of consolidated lines. The state railways comprise the greater part of the transportation system and have a total trackage of 4138 kilometers as compared with 2950 kilometers for all the privately owned lines combined. In the outer possessions all the railway lines are government owned, except the important railroad, Deli Spoorweg Maatschappiji, which serves the highly developed part of northern Sumatra about Medan. In 1925, 10,953 steamers and 9021 sailing vessels, of 7,853,441 tons and 536,163 tons respectively entered the ports of the Dutch East Indies.

GOVERNMENT. The territory is under the sovereignty of the Netherlands (q.v.) but is partly under direct government and partly under subject native officials. In 1917 and again in 1925 the mother country granted certain measures of home rule. The chief executive authority is the governor-general who is aided by a council of five members which acts partly as a legislative and partly as an advisory body. The governor-general and the council are nominated by the crown. Governor-General in 1927, Dr. A. C. D. de Graeff (appointed Mar. 26, 1926).

DUTCH GUIANA, gē-ä′nȧ, or SURINAM. A possession of the Netherlands on the north coast of South America lying between French Guiana on the east and British Guiana on the west, bounded on the south by inaccessible territory reaching to the Tumuc-Humac mountains. Area, 54,291 square miles: population, Dec. 31, 1925, 139,869, including Negroes and Indians. Capital, Paramaribo, with 45,554 inhabitants. The movement of population in 1925 was: Births, 3931; deaths, 1772; marriages, 395. Among the chief products are sugar, cacao, bananas, coffee, rice, maize, rum, and molasses. Gold production in 1925 was 308,533 grams, and that of balata, 734,080 kilos. The executive authority rests with a governor and an assisting council, both nominated by the crown. Governor in 1927, Baron van Heemstra, who was appointed on May 23, 1921.

DUTCH REFORMED CHURCH. See REFORMED CHURCH OF AMERICA.

DUTCH WEST INDIES. The name applied to the Dutch possessions in the West Indies, viz., Dutch Guiana (q.v.) and Curaçao (q.v.).

DYER, BRIGADIER-GENERAL REGINALD EDWARD HARRY. Anglo-Indian officer, died at Bristol, England, July 23. He was born at Simla, India, Oct. 9, 1864, and was educated at Middletown College, County Cork. He was commissioned in the West Surrey regiment in 1885, but later transferred to the Indian Army in the Twenty-fifth Punjabis. He served in various campaigns in India, and at the outbreak of the World War was in command of the Forty-fifth Infantry Brigade. He was placed in charge of the eastern Persian cordon which prevented German parties from crossing into Afghanistan. For this work he was made a C.B. in 1917. In April, 1919, when Dyer was brigade commander at Jullundur, an outbreak in the Punjab occurred at Amritsar, resulting in the destruction of buildings and the deaths of five Englishmen. Dyer immediately took charge of the situation, and, enforcing martial law by vigorous methods, restored order by firing on the inhabitants of the city. It was officially stated some months afterwards that 379 persons were killed and about 1200 wounded, but at the time of occurrence this information was withheld by the censor and the outbreak attracted little attention in England. The Indian government at first shielded General Dyer, but later censured him, and his action resulted in a controversy which led to the resignation of General Dyer as brigade commander and his relief from further employment in India. For several years General Dyer's course was debated. He had many supporters as well as opponents. While the House of Lords adopted a resolution on July 20, 1920, deploring the conduct of the case of General Dyer as unjust to him, nevertheless the action of the British commander-in-chief in India in removing him from his command in the Punjab and barring him from future army service was upheld by the army council reviewing the findings of a commission. He was the author of: *The Raiders of the Sarhad* (1921).

DYESTUFFS. See CHEMISTRY, INDUSTRIAL.

DYNAMO-ELECTRIC MACHINERY. The year was notable for the construction and installation of larger generators, motors, frequency-changers and the like than had characterized 1926. The two-cylinder, 168,000-kw. turbine that was built by the General Electric Co. and installed at the Hell Gate station, New York City, was extraordinary not only for its size, but also on account of the unusually high speed at which it operated, namely 1800 revolutions per minute. A single-cylinder turbo-generator of 75,000 kw. capacity was under construction for the Buffalo, N. Y., General Electric Co., designed to operate at 1500 revolutions per minute. One of the large manufacturing companies was building two generators, each nominally rated at 90,000 kw., at 90 per cent power factor, the largest in the world both in capacity and dimensions; to be driven by the two largest tandem-compound turbines ever built. These generators were designed to operate at 1500 revolutions per minute, and to generate electricity at 16,500 volts.

Water-wheel generators being built for the Conowingo development on the Susquehanna River were of record size and capacity, designed to run at 82 r. p. m. and develop 40,000 kw., and were to be 38 ft. outside diameter. Two others, of vertical type, for the Carolina Power Co., developed 45,000 kw. at 400 r. p. m. The increasing employment of electric drive for naval as well as merchant vessels was exemplified in the U. S. Navy airplane-carriers, one of which, the *Saratoga*, was placed in commission late in the year. Her propelling machinery had a total rating of 180,000 horse power, each one of her four shafts being driven at 317 r. p. m. by two 22,500-h.p. motors. An improved method of construction employed for electric machinery was the employment of structural shapes, plates and slabs which were welded in the desired form, thus greatly reducing weight as compared with castings and rendering it possible to ship many large machines completely assembled. Several new methods of automatic fire-extinguishing apparatus were incorporated in the design of large generators, as well as more efficient systems of cooling. A 40-h.p. mine locomotive was built with totally enclosed motors for the purpose of making it proof against explosive gases, as well as to enable it to operate through gritty material and even water. For grinding, sanding, buffing and similar operations, small high-speed motors were used to an increasing extent. Some of these were designed to run at 32,000 r. p. m., and generators of special type were built to supply them with 540-cycle, 3-phase energy. For continuous duty, such as operating domestic refrigerating plants, motors of somewhat different design were built, having characteristics particularly adapted to such purposes. Of unusual application was the motor outfit applied to a shovel, said to be the largest in the world, having a dipper capacity of 15 cubic yards, that was under construction at the end of the year for an Illinois coal company for use in open pit mining. It was designed exclusively for electric operation on alternating current at 4000 volts, supplied through a 1000-foot cable wound on a reel at the rear of the chassis. The main motor was rated at 1700 horse power, and it operated a generator from which current at other voltages could be drawn for the several other motors that controlled the boom, dipper and other parts of the machine.

DYSENTERY. In the form of dysentery known as the amœbic, which is due to the presence of a protozoön, the endameba histolytica, it has been commonly believed that while many people may contain this parasite in the intestines but few develop the disease. This recently was shown to be fallacious, for there were at least five species of amœba which might be present in the intestine, belonging to four different genera, yet of these but one is capable of causing dysentery. This does not alter the fact that many carriers of the true disease organism are free from dysentery. It is evident that a mere study of carriers will serve no useful purpose alone. Of late years amœbic dysentery has been encountered in the United States, and an episode in Chicago is described in the *Journal of the American Medical Association* for Mar. 26, 1927, by Kaplan and two others. During the preceding year nearly 40 cases had been treated in the Cook County Hospital, seven or eight among employees and guests of one hotel, while most of the others had worked along the railroads. As food transmission was suspected, 720 food handlers were investigated, but only 2 per cent were found to be carriers, while there was but one actual case of dysentery. Both carriers and clinical cases were isolated for treatment. This campaign was still in progress at the end of he year.

EARTH, Study of. See Geology.

EARTHQUAKES. It is estimated that an arthquake is felt in some part of the world n an average of at least 4000 times annually; n the United States alone, one or two hundred sually are reported each year. Fortunately, the ast majority are feeble and harmless, or else ccur under the sea or in thinly populated disricts. The year 1927 had the usual quota of uakes, many of which caused considerable ocal damage and loss of life, and a few of hich ranked as major disasters.

On March 7, a disastrous quake in central nd western Japan destroyed many towns, inuring 6734 people and killing 3274; the centre as in the province of Tango, near the region f the Tajima quake of May 23, 1925. On May 3, Kansu province in western China was devasted by a quake which killed about 100,000 eople; the epicentre was 130 miles to the west that of the gigantic quake of Dec. 16, 1920; is quite unusual for two such severe quakes occur in the same region within so short a eriod of time. On July 11, heavy damage was flicted in Palestine by the first great quake that region since 1837; 268 people were killed, d 800 injured. A series of severe shocks, benning on February 14, caused considerable mage, suffering, and loss of life in Jugo-Slavia. An earthquake of great magnitude, but without serious consequences (because of the sparsely settled character of the country) occurred in Alaska on October 24; it was centred about 75 miles north of Yakutat Bay, the scene of the tremendous quake of 1899 when uplifts as great as 40 feet took place.

The region of Calexico and Mexicali on the United States-Mexican border was shaken January 1, and damage was done to a number of towns, but there were no casualties. See Seismology.

EAST AFRICA PROTECTORATE. See Kenya Colony.

ECLIPSES. See Astronomy.

ECONOMIC ENTOMOLOGY. See Entomology, Economic.

ECONOMICS. See Banks and Banking; Business Review; Financial Review; Labor; Insurance; Public Finance; Strikes and Lockouts; Taxation, and other articles on economic topics.

ECUADOR, ĕk′wȧ-dôr. A South American republic on the northwest coast of the continent between Colombia on the north and Peru on the south. Capital, Quito.

Area and Population. The area in 1927 was still undetermined because of the boundary dispute with Peru, but was variously estimated by six different authorities at from 116,000 to 276,000 square miles. The population was estimated at approximately 2,000,000, about three-quarters of whom were Indians and the remainder of mixed blood. The last official census in 1903 placed the population at 1,328,821. The chief towns with their populations are: Quito, 80,702; Guayaquil, 100,000; Cuenca, 30,000; Riobamba, 12,000; and Ambato, Loja, and Latacunga, each with about 10,000 inhabitants.

Education. Primary education is free and compulsory. Institutions of higher learning include the Central University at Guayaquil and Azuay University at Cuenca, and a Law College at Loja.

Production. Cacao is the chief source of wealth of the country. The production in 1925 was 513,160 hundredweight as compared with 564,840 in 1924. Other crops are coffee, rubber, ivory, nuts, tobacco, and sugar. Ecuador has practically monopolized the production of Panama hats, which are produced at the rate of 700 dozen per month. The mineral resources include gold, silver, petroleum, copper, iron, lead, coal, and sulphur, but mining is almost exclusively confined to gold, of which practically the entire output is exported to the United States.

Commerce. The accompanying material on the commerce of Ecuador was published in 1927 by the Pan American Union. The total foreign trade for 1926 amounted to 110,644,179 sucres, represented by imports to the value of 47,073,069 sucres, and exports of 63,571,110 sucres. For the preceding year, 1925, the figures were: Imports, 55,234,924 sucres; exports, 72,511,616 sucres; total 127,746,540 sucres. Expressed in United States currency, estimating the sucre at 48.6 cents par value (10 sucres equal £1), the foreign trade in 1926 was: Imports, $22,877,511; exports, $30,895,559; total, $53,773,070. The figures for 1925 were: Imports, $26,844,173; exports, $35,240,645; total, $62,084,818.

TEN-YEAR TABLE OF FOREIGN TRADE

Year	*Imports Sucres*	*Exports Sucres*	*Total Sucres*
1917..........	20,940,097	33,558,014	54,498,111
1918..........	16,690,720	27,499,535	44,190,255
1919..........	24,007,688	43,220,558	67,228,246
1920..........	43,494,555	49,891,926	93,386,481
1921..........	23,486,190	33,968,899	57,455,089
1922..........	33,581,897	46,106,913	79,688,810
1923..........	36,804,758	38,386,359	75,191,117
1924..........	52,003,021	61,267,919	113,270,940
1925..........	55,234,924	72,511,616	127,746,540
1926..........	47,073,069	63,571,110	110,644,179

FINANCE. The last available budget was that for 1926 when receipts and expenditures balanced at 41,988,000 sucres. The financial commission under Professor Kemmerer, mentioned in the preceding YEAR BOOK, prepared 25 projects for the improvement of financial conditions in the republic, some of which are the following: Procedure for handling customhouse documents of foreign origin, creation of the Central Bank of Ecuador, coinage law, general banking law, regulations for agricultural insurance contracts, organic budget law, memorandum on the organization and activities of the administration department of the government, reorganization of government accounts and the establishment of a comptrollership, project of law for the revision of the present tax system on rural property, amendments to the penal law, project of law to take the place of the actual income-tax law, project of a law on administration of customhouses, report on public credit, report on public works, report on proposed railroad from Quito to Esmeraldas, project of amendments to the Civil Code of Judicial Procedure and the organic law of the judicial power, report on the liquor monopoly, report on stamp law, project of law on amendments to certain articles of the constitution, and report on municipal finances. One of the projects was put into effect by virtue of a law creating the Central Bank of Ecuador in March, 1927.

COMMUNICATIONS. Guayaquil is visited by the steamships of nine European lines by way of Magellan Straits, as well as by vessels plying only on the Pacific. There are about 500 miles of railways. During 1927 the government appropriated 3,852,000 sucres for railroads, distributed as follows: 120,000 for El Oro Railroad; 60,000 for the Ambato-Curaray Railroad; 162,000 for the Bahia-Chone Railroad; 1,100,000 for the Puerta Bolivar-Loja Railroad; 500,000 for the railroad to the coast; 1,000,000 for the Sibamba-Cuenca Railroad; and 910,000 for the Quito-Esmeraldas Railroad.

GOVERNMENT. Executive power is vested in a president elected for four years, who acts through a cabinet of five ministers; and legislative power in a congress of two houses, a senate of 32 members and a chamber of deputies of 48 members. Provisional president in 1927, Dr. Isidro Ayora. See preceding YEAR BOOK.

HISTORY. The year was a comparatively uneventful one for Ecuador. The most pressing internal problem was the relations between the government and the clergy. In the fall the government issued a decree which forbade foreign churchmen of all denominations entrance into the country, with certain exceptions prescribed by the Minister of the Interior. Several deportations of priests occurred during the year, because the government believed they were stirring the people with revolutionary activities.

EDISON MEDAL. See ELECTRICAL ENGINEERS, AMERICAN INSTITUTE OF.

EDUCATIONAL PSYCHOLOGY. See PSYCHOLOGY.

EDUCATION IN THE UNITED STATES. STATISTICS. *Attendance.* Statistics of attendance for the public schools for the school year ending June 1925 were announced by the United States Bureau of Education as follows: The estimated number of children 5–17 years of age inclusive was 29,705,264. Of this number 24,650,291 were enrolled in some school either public or private. Those between the ages of 5 and 17 are 26.2 per cent of the total population. This per cent had remained nearly stationary since 1910. Those who were enrolled as pupils are 21.7 per cent of the total population. This was the highest that had been reported by the Bureau of Education.

The most pronounced change had taken place in the per cent of pupils who attend each day. In 1925 this was 80.5 per cent. In 1910 it was only 68.6 per cent.

The elementary schools enrolled a total of 20,158,566 pupils, while the high schools enrolled 3,363,515. In the total enrollment there are 116,591 more boys than girls. In the high schools, however, the girls outnumber the boys by 156,807. The per cents of pupils enrolled in the elementary schools in the eight grades, beginning with the first, are 19.9, 13.7, 13.4, 13.2, 12.3, 10.7, 9.5, and 7.3 respectively. In the high school the enrollments for each of the four years beginning with the first are 39.0, 26.6, 19.6, and 14.8 respectively. When these per cents are compared with those for previous years, they show that fewer pupils are being held back in the first and second grades.

The most noteworthy change in attendance statistics is found in the change that has taken place in the per cent of the school population enrolled in high schools. In 1925 this was 14.8 per cent. In 1920 it was 10.2 per cent, in 1910 it was 5.1 per cent, while in 1900 it was only 3.3. per cent.

The average number of years of school life which children have varies from 4.05 years in Alabama to 9.08 years in Massachusetts. The average for the country is 6.92 years.

The average number of days that schools were in session has changed from 144.3 days in 1900 to 169.6 in 1925.

COSTS. The total expenditure for schools per capita of population in 1925 was $17.15. This is an increase from $9.80 in 1920 and $4.64 in 1910. The total expenditure per pupil in average attendance in 1925 was $98.10. In 1920 it was $64.16, and in 1910 only $33.23. On the average it cost 57.9 cents per day for each pupil who attended school in 1925. In 1920 it cost 39.6 cents and in 1910 the cost was 21.1 cents. The total expenditures for all public school purposes in 1925 was $1,946,096.912. The revenue for the public schools was derived as follows: From permanent funds and lands 1.4 per cent, from State taxes 14.1 per cent, from county and local taxes 78.8 per cent, and from all other sources 5.7 per cent. The school funds were spent as follows: For sites, buildings, etc., 22.3 per cent, for salaries 51.7 per cent, and for all other purposes 26 per cent.

VALUE OF SCHOOL PROPERTY. The value of all school property in 1925 was $4,252,328,900. This is an increase of nearly 75 per cent over the values for 1920. The number of school buildings has steadily decreased since 1915. In that year there were 277,941 buildings. In 1925 there were 258,859.

Teachers. A total of 777,945 teachers were employed in the public schools. Of these 16.9 per cent or 131,164 were men. The average annual salary of all public school teachers was $1,252. In 1920 the average salary was $871.

Adult Education. In recent years the education of adults has received much consideration. Attention was directed toward the need by the 1920 census, which showed that approximately 6 per cent of those 10 years old and older could not write in any language. The United States Commissioner of Education stated that, "the general characteristics of what may properly be considered organized adult education are: (1) The individual must have passed the compulsory school age; (2) The work must be voluntary; (3) it must be somewhat intensive and should continue for some time; and (4) it must be done during the leisure time of the individual."

One of the major purposes of adult education relates to reëducation and the ultimate elimination of illiteracy. Most of the States make some provision for the teaching of adult illiterates. Many States provide funds that are to be matched by the local district in which the classes are held. Twenty-two States give aid from state funds varying from 20 per cent to 100 per cent of the total cost of instruction. In 1925 the States reported that classes for adults were held in 1500 centres and 310,000 students were enrolled.

A second purpose is to teach the foreign-born illiterates. Classes for non-English speaking aliens are established in most of the large cities. The State of New York alone spent $750,000 for this purpose. The classes were attended by 75,000 students. (See Adult Education, American Association for.)

University extension courses are provided by most State universities, and State agricultural colleges. Several of the larger universities, notably Chicago and Columbia, offer a wide range of correspondence courses. Radio is also being utilized to teach those who cannot attend colleges. Short courses in foreign languages, sciences and history are being broadcast. No way has yet been devised by which the institutes are able to give credit for study done in this way.

For many years there have been various correspondence schools conducted on a commercial basis. These schools still exist and render a worthy service. Never before, however, have private institutions interested themselves in this work.

The American Association for Adult Education was organized in 1926. This organization has endeavored to coöperate with all of the adult education organizations. The association has been able to encourage several noteworthy investigations. Among these is a study of adult education conducted by Dr. E. L. Thorndike. The results of his experiments indicate that persons 35 years old or older do not learn as quickly as those who are 20 to 24 years old. In some traits he found that the older persons gained only about three-fourths as much as the younger, while in others, the gains made by the older persons were four-sixths as much as those made by the younger. The conclusion is reached that persons under fifty should seldom be deterred from trying to learn something which they really need to learn by the fear that they are too old, and, to a lesser degree, this is true after 50 also.

The new School for Social Research in New York City was conducting a class in teacher training for adult education.

Anti-Evolution Legislation. The attention of educational and scientific bodies continued to be directed toward the attempts that had been made to outlaw the teaching of evolution in public schools and colleges. No new laws were enacted during 1927 but no less than thirteen anti-evolution bills were introduced in various State legislatures. In three States, Tennessee, Mississippi, and Texas it was against the law to teach evolution. The American Association of University Professors adopted two resolutions that have to do with the spread of anti-evolution legislation. The first which was introduced by Professor A. O. Lovejoy of Johns Hopkins University is as follows:

> Resolved, That this association take the initiative in bringing about a more effective coöperation between all groups of organizations interested in opposing legislative restriction on freedom of teaching in state-supported institutions and in defending the principle of a separation of church and state in educational matters.

The resolution which follows was introduced by Professor R. H. Johnson, of the University of Pittsburgh:

> Resolved, That when some similar organization is formed it should investigate the legality of the action of the Texas State Text-book Commission, which has removed all mention of evolution from text-books in state-supported schools.

Commercial and Business Schools. The United States Bureau of Education reported a decrease in the number of private commercial and business schools since 1920. At that time there were 903 institutions with an enrollment of 336,032 students. In 1925 there were 739 such schools and an enrollment of 188,363; at least 275 of the schools that reported in 1920 had been discontinued. There were 20 public commercial and business high schools enrolling 35,120 students. The enrollment in stenography was 16,004, in bookkeeping there were 12,535, and in combined courses, 10,771.

In 1924 a total of 3742 public high schools had 430,975 enrolled in commercial courses, and 740 private high schools enrolled 11,941 students. In 1918 there were 2953 public high schools in which 278,275 students were in the commercial departments. This large increase in the number of public high schools offering commercial courses accounts for the decrease in the number of private schools.

The Cranbrook Foundation. George C. Booth, publisher of the *Detroit News*, gave $6,500,000 to complete what was to be known as the Cranbrook Foundation. He had given in all $12,000,000 to create this educational and cultural centre. Mr. Booth began by building a school for children on his large estate outside of Detroit; later the population increased and he built the Cranbrook School for boys and still later a beautiful church. Plans were being completed to build a school for girls, a school for arts and crafts and an academy of arts. It was the hope of Mr. Booth to attract leading artists and craftsmen as masters who would live in the buildings and have the students in the surrounding art community serve them much as apprentices would. The foundation will be under the management of a small non-sectarian board of trustees.

CURRICULUM. Changes and improvements of courses of study for the public schools continued to command the attention of school people. During 1927 secondary school courses received most consideration. Two factors are combined to make curriculum a confusing matter. The first of these is the conflicting notions that are held by those who are regarded as leaders in this work. The National Society for the Study of Education, through a committee, composed of the outstanding specialists in this field, prepared a year book which was presented at the February meeting of the Department of Superintendence. The effort was made to reach an agreement upon the foundation of curriculum-making. The report signed by the 12 members of the committee covers less than 21 pages. These same 12 specialists used a total of 121 pages to describe the particular interpretations that each wished to have made of the report. These interpretations differed.

While the theories regarding the content of the curriculum varied greatly, the new ones that have appeared do not differ greatly from each other or from those that have been in operation in the public schools. The expression of doubts concerning the effectiveness of the plans that have been employed to bring about changes in course of study were heard with increasing frequency.

The second factor that tends to prevent changes in the curriculum is found in the attitude of society. There are many evidences that an influential part of society is no longer willing to leave the selection of subject matter to the schoolmaster. This opposition was shown in a spectacular way by the controversies that have raged in regard to history texts and the teaching of evolution. In New York City, the schools still were working under the influence of a movement that opposed the use of certain texts in United States history. Among other things it was alleged that they did not treat the forefathers with proper respect. During the year 1927 a similar controversy existed in Chicago. A legal ban upon the teaching of evolution prevailed in several States. The Science League of America received the report of a survey committee, headed by Dr. David Starr Jordan, which shows that, "during 1927 thirteen anti-evolution bills were introduced in various State Legislatures and, while none of them passed, several of them were defeated by very close margins."

Less spectacular but perhaps of greater importance were the increasing number of laws that make mandatory the teaching of certain subjects. These prescriptions vary from the observance of special days to the teaching of safety and the prevention of fire.

A complaint that was often heard was that the school attempts to teach too many subjects with the result that none is well mastered by the pupils, yet the tendency was to crowd more subjects into the curriculum and to take none out. The attempt to include geography, history, and civics in one subject, called "social science," has not met with pronounced success.

The attention that had been given to curriculum revision during several years past had a number of valuable effects; permanent among these was the increased knowledge of educational problems which the teachers themselves now have. Curriculum revision has become a part of the teacher's duty, whereas earlier she or he had no part in this service.

Confusion as to what should be taught will continue until there are new definitions of the purposes of public schools. With such exceptions as are found in vocational high schools the controlling purpose in the secondary schools is college admission. Since such a large proportion of the youth enter high school, it is natural that the upper elementary school grades should be greatly influenced by the need of preparing pupils to enter high school. The early years of the elementary school represent, therefore, the period where there is greater freedom for experimentation in regard to subject matter. Even the pre-school period is receiving much attention. Both Wellesley and Vassar Colleges announced experimental schools for pre-school children. Already well equipped schools for such children exist at Yale, Columbia, University of Iowa, and the Merrill-Palmer School at Detroit, while the University of California had received a fund for the establishment of such a school. With colleges and universities giving serious consideration to the purposes of education in these fields, there was reason to believe that there will come about a better understanding of what schools should accomplish.

THE FEDERAL EDUCATION BILL. In his message presented at the opening of the Seventieth Congress, President Coolidge made the following statement: "For many years it has been the policy of the Federal government to encourage and foster the cause of education. Large sums of money are annually appropriated to carry on vocational training. Many millions go into agricultural schools. The general subject is under the immediate direction of a commissioner of education. While the subject is strictly a State function, it should continue to have the encouragement of the national government. I am still of the opinion that much good could be accomplished through the establishment of a Department of Education and Relief, into which would be gathered all of those functions under one directing member of the cabinet."

This renewed assurance of Presidental support gave new interest to the attempt to secure a Secretary of Education. The new bill which was introduced was known as H. R. 7. Following are the subjects of the different sections of the bill:

Section 1. Creates a Department of Education with a Secretary in the President's Cabinet.

Section 2. Authorizes an Assistant Secretary of Education and other necessary assistants.

Section 3. Provides for the transfer to the Department of Education of the Bureau of Education, the Federal Board for Vocational Education, and of such control as is now exercised over the Columbia Institution for the Deaf and Howard University.

Sections 4, 5, and 6. Defines the powers and duties of the Secretary of Education.

Section 7. Provides for a Federal conference on education consisting of one representative from each of the Executive Departments.

Section 8. Provides that the Department of Education shall conduct researches covering the whole field of education, and for the distribution of results of such researches to educational officials in the several States and to other persons interested in education.

Section 9. Provides an appropriation of $1,500,000 annually for the support of the work of the department.

Section 10. Provides for the creation of a National Council on Education, composed of the chief school authorities of the various States, territories, and possessions, who shall meet annually at the call of the Secretary of Education.

Section 11. Provides that the Secretary of Education shall make an annual report to congress.

Section 12. Is an enacting clause.

INTERNATIONAL EDUCATIONAL CONFERENCES. *The Locarno Conference of the New Education Fellowship.* The Fourth International Conference of the New Education Fellowship was held at Locarno, Switzerland, from August 3 to 15. More than 1100 people representing 51 countries attended; more than 200 Americans were there. The programme of the conference had as its central theme. "The True Meaning of Freedom in Education." Four institutions in the United States were represented on the programme. The Dalton method was presented by Dr. Lucy L. W. Wilson, of the South Philadelphia High School for Girls, Mrs. Marietta Johnson, founder of the Fairhope (Alabama) School of Organic Education, spoke on the subject of coeducation, Dr. Harold Rugg of the Lincoln School of Teachers College, Columbia University, spoke on the revision of curricula, and Dr. Carleton Washburne described the methods of individual instruction used in the Winnetka, Illinois, schools. The next meeting was to be held in some city in Denmark. The themes of the next conference to be held in 1929 were to be, first, freeing of the child to allow the fullest possible use of all the faculties he possesses, and second, the best kind of curriculum adapted to the needs of modern life.

THE WORLD FEDERATION OF EDUCATION ASSOCIATIONS. This Federation held its biennial meeting in Toronto, August 7 to 12. More than 5000 delegates were present. A feature of the meeting was the consideration of the reports of five committees appointed under the Herman-Jordan plan of education for international understanding. Committee No. 1 was concerned with the problem of "Education for International Understanding." Committee No. 2 gave a report on the "Teaching of History." Committee No. 3 reported on "International Relations of Youth as Expressed in Athletic Events, Physical Education, and Sports." Committee No. 4 reported on "Military Training and Military Defenses." Committee No. 5 worked on a report on "Studies of Methods and Instruments used in Settling International Disputes without Resorting to War." Each committee held open conferences during the meeting.

Mr. E. J. Samsbury, of Surrey, England, chairman of Committee No. 4, presented the report of his committee in respect to military training. As reported in *School and Society* the report "declared that military preparedness on an unrestricted scale among the nations was provocative of war feelings, and that training of students in the schools and colleges of England, the United States, and other countries tended to promote the view that disagreements among nations could be settled only by an appeal to the sword." The resolutions that were presented opposed military training in civil educational institutions. The report aroused a heated debate and the resolutions were tabled, but they were to be considered at the meeting in 1929.

The meeting adopted resolutions relating to Educational Opportunity, Adult Education, History Teaching, Geography Teaching, Educational Week, Character Education, the Behavior Problem Child, International Educational Exchange, the Removal of Illiteracy, Visual Education, and other topics.

PAN-PACIFIC EDUCATIONAL CONFERENCE. A pan-Pacific Conference on education, reclamation, and recreation met in Hawaii during June. Fifteen countries were represented. The purpose of the meeting was to create a better understanding among the Pacific countries. Secretary of the Interior Hubert Work was responsible for the organization of the meeting. Many educators from the United States attended and participated.

RURAL SCHOOL STANDARDIZATION. The United States Bureau of Education reported that thirty-one State departments of education were promoting standardization of rural schools. In some of the other states, county school officers were encouraging standardization within their own districts.

Among the important requirements for standardization of rural schools are the following:

(1) The school site should be well drained, level, fertile, and should contain at least two acres of ground.

(2) The school building should comply with accepted standards relating to numbers of rooms and their dimensions, color scheme for walls and ceilings, replacement of glass area of windows, heating and ventilation, and amount and kind of equipment.

(3) The minimum scholastic preparation of the teacher should be completion of four years of high school, plus a two-year normal course and two years of successful experience.

(4) The school term should be nine months; the average daily attendance at least 90 per cent of the enrollment and the enrollment 90 per cent of the educables of the district; there should be a well-planned daily programme, and the State course of study should be followed.

SABBATICAL LEAVE FOR PUBLIC SCHOOL TEACHERS. According to a report of the Bureau of Education, there is a large increase in the number of cities granting sabbatical leave to teachers. More than 50 per cent of cities of a population of 100,000 or more have definite plans for granting their teachers leave for professional study and improvement. The sabbatical plan is the most popular one. According to a report by the National Sabbatical Leave Association, Cleveland, 39 cities, having a population of 100,000 or more, have adopted a definite plan and 133 cities having a population of 2500 to 100,000 have also adopted plans for teachers' leave. Many cities have virtually the same regulations. The eighth year is given and the teacher is expected to return for two or three years to the same system and repay part of the money granted while he or she was on leave. The remuneration is usually one-half of the regular salary. In general not more than 1 per cent are permitted to be absent at one time.

SCHOOL SAVINGS BANKING. According to a report made by W. Espey Albig, deputy manager of the American Bankers' Association, in charge of its savings activities, nearly four million pupils participated in school savings banking and deposited almost twenty-four million dollars during the year ending June 30, 1927. Mr. Albig stated that seven years before, the Savings Bank Division of the American Bankers' Association reported 2736 schools having schools savings, while on June 30, 1927, the number was 12,678. The number of pupils enrolled in schools having a school savings system had increased from 1,015,653 to 4,658,156. The number of pupils participating in school savings had increased from 462,651 to 3,815,785; while the enrollment in these schools had increased 358 per cent; the number participating in savings has grown 724 per cent.

Seven years previously the deposits amounted to $2800 and in the year 1927 to about $23,700,000. The net savings of that year were $9,464,178.93 and the bank balances $39,137,073.91.

In comparison with the previous year the number of schools increased 11.4 per cent; the number of pupils enrolled in schools having a savings system 7.8 per cent; the number participating 12.1 per cent; the deposits 15.7 per cent; and the net savings 7.9 per cent.

See Universities and Colleges, and sections on *Education* in articles on various states and countries.

EGERTON, ĕj′ẽr-ton, Hugh Edward. British historian, died at Oxford, May 21. He was born Apr. 19, 1855, and was educated at Rugby and at Corpus Christi College, Oxford. He became assistant private secretary to the Rt. Hon. Edward Stanhope, M.P. When the latter was appointed to the Colonial Office in 1886 Egerton went with him and was made a member of the managing committee of the Emigrants Information Office, where he was active until 1906. In 1905 he became Beit professor of colonial history at Oxford and fellow of All Souls College, holding the chair until 1920. His work in the colonial office involved the preparation of a concise and accurate handbook on the British colonies, and this led him to devote himself to their early history and subsequent developments. In 1897 he published. *A Short History of British Colonial Policy*, a sixth edition of which appeared in 1920; and in 1900 a short biography of *Sir Stamford Raffles*. In 1902 appeared *Origin and Growth of the English Colonies*, which attained a third edition in 1920. After he had entered upon his professorship in 1905 he published a number of works on colonial history, including: (with Prof. W. L. Grant) *Canadian Constitutional Development* (1907); *Federations and Unions Within the British Empire* (1911); and *British Foreign Policy in Europe* (1917). After his retirement from his chair he wrote: *Causes and Character of the American Revolution* (1923), a book which established his reputation on both sides of the Atlantic as a keen, impartial and discriminating historical scholar. Professor Egerton contributed to many of the more important works of reference and also edited several important collections, including *Sir W. Molesworth's Speeches* (1903), and *The Royal Commission on Loyalists' Claims, 1783–85* (1915).

EGGS. See Livestock.

EGYPT. A kingdom in northeastern Africa, governed by a king since Mar. 15, 1922, after the termination of the British protectorate declared Dec. 18, 1914; occupying the valley of the Nile, the Libyan desert, the region between the Nile and the Red Sea and the Sinai peninsula; claiming jurisdiction also over the Sudan, which claim, however, is denied by the British. Capital, Cairo.

Area and Population. The total area of Egypt proper which is described above is about 383,000 square miles. This figure does not include the Sudan. The cultivated and settled area, comprising the Nile valley and delta, is only 12,023 square miles. The last census of the settled area, taken on Feb. 18–19, 1927, gave the total population at 14,168,756 as compared with 12,750,918 at the census of March, 1917. The chief cities with their populations at the census of 1917 were: Cairo, 790,939; Alexandria, 444,617; Port Said (including Ismailia), 91,090; Suez, 30,996; Tanta, 74,195; Mansura, 49,238; Asyut, 51,431; Damanhur, 47,867; Fayum, 44,000. In the same year the population was distributed among the various religions as follows: Mohammedans, 11,658,148; Greek Orthodox, 854,778; Roman Catholic, 107,687; Jews, 59,581; Protestants, 47,481. The movement of population in 1924 was: Births, 604,410; deaths, 343,515.

Education. Elementary education is supplied by native schools called Maktabs. In 1925–26 the number of these receiving grants-in-aid and under government inspection was 2762, with 5220 teachers and a total attendance of 202,795, while those under the immediate direction of the government in 1926 was 337, with a total attendance of 49,531. In addition there are higher elementary and higher primary schools, a few schools for technical and special training, and higher colleges of law, engineering, military science, veterinary science, agriculture, pedagogy, commerce and accounting, and medicine. The total number of schools under the control of the provincial councils in 1926 was 3575 with 286,681 pupils. The centre of Moslem culture is the mosque and university of El-Azhar at Cairo.

Production. World overproduction of cotton, which resulted in lower prices for this staple, coupled with industrial depression in certain countries which are normally the largest consumers of Egyptian cotton, subjected Egypt's economic position to a severe test. The actual loss in the value of raw cotton exported during the 1925–26 cotton year, as compared with the previous year, was £E17,355,000 (the Egyptian pound equals approximately $5). The Egyptian government extended aid during the 1925–26 season by purchasing large quantities of cotton and storing it; but as these stocks merely swelled the abnormal supplies on hand at the end of the season, the same policy was not followed in the 1926–27 season. Instead the government placed large sums of money at the disposal of the banks in order to supply the farmers with loans on the cotton stored in the banks' warehouses. The final official estimate placed the 1926 cotton crop at 1,497,000 bales averaging 478 pounds net. The sugar industry, which ranks after cotton in importance, was also affected by the large world crop. The sugar crop in Egypt rose from 845,000 tons in 1925 to 968,000 tons in 1926, but the total return on sales showed a contrary result for these periods, the crop of 1925 having been sold for approximately £E2,325,400 and that of 1926 for £E1,913,000.

The sugar situation in Egypt was improved somewhat by the remission of the export duty and, with the government curtailment of the Cuban crop, the outlook for the industry was more promising.

The project for the Gebel Awlia Dam was abandoned during the fiscal year 1925–26, thus delaying the realization of the irrigation programme and the cultivation of new land. To offset this it was proposed again to raise the Assuan Dam, this time by an additional 20 feet; this will double its present height and double the capacity of the artificial lake, which now stores 2,500,000,000 cubic meters of water. The plan would involve an expenditure of approximately $15,000,000. A scheme to increase the Nile water supply for irrigation, actually under consideration by the Egyptian government, is the draining of the Sudd. Preliminary work on this project was under way in 1927, for which £E200,000 was appropriated. The work is expected to require 15 years to complete, with annual appropriations of £E200,000. Both these projects, however, encountered some opposition.

In 1925 the area and yield of wheat were 1,379,626 acres and 984,363 tons; barley, 366,437 acres and 242,635 tons; beans, 462,921 acres and 307,335 tons; lentils, 66,817 acres and 41,413 tons; onions, 40,609 acres and 259,887 tons; maize, 2,076,342 acres; millet, 222,468 acres; rice, 142,716 acres; sugar-cane, 53,308 acres. In the same year there were in Egypt 34,017 horses, 709,789 donkeys, 21,480 mules, 676,994 cattle, 722,943 buffaloes, 1,091,016 sheep, 455,054 goats, and 159,345 camels. The principal mineral products in 1925 were in metric tons: Phosphate rock, 106,808; petroleum, 179,651; and manganese iron ore, 80,589. Other products are nitrate shale, carbonates and sulphate of soda, ochres, sulphate of magnesia, talc, building stones, clay, gypsum, natron, nitrate of soda, salt, and turquoise. Manufacturing in Egypt is still in its infancy, but indications point to systematic and more rapid development in the next decade. Although the cigarette industry is one of the most important in the country, no tobacco is raised in Egypt, but $7,000,000 worth is imported annually.

COMMERCE. For the first time in five years, the trade balance was unfavorable in 1926—a result that is accounted for by the slump in world cotton prices and the consequent returns on Egypt's leading export commodity.

EGYPT'S FOREIGN TRADE DURING 1926
[000 omitted]

Commodity	*1925*	*1926*
IMPORTS		
Yarns and textiles	£E17,966	£E13,631
Metals and metal ware	8,472	8,762
Cereals, flour, and agricultural produce	7,101	5,952
Wood and coal	4,840	4,355
Chemical and medicinal products and perfumery	4,205	3,791
Spirits, beverages, and oils	3,558	3,803
Colonial produce and general groceries	3,168	2,935
Animals and animal food products	1,868	1,802
Other animal products	66	54
Stone, earthenware, and glassware	1,638	1,499
Tobacco, tumbak, and cigars	1,473	1,852
Paper and printed matter	1,032	1,027
Hides, skins, and leather goods	663	674
Dyestuffs and colors	398	380
Miscellaneous	1,777	1,888
Total	58,225	52,400
EXPORTS		
Yarns and textiles	52,025	34,670
Cereals, flour, and agricultural produce	4,795	4,077
Animals and animal food products	527	325
Spirits, beverages, and oils	394	756
Cigarettes	383	355
Hides, skins, and leather goods	248	325
Metals and metal ware	225	743
Colonial produce and general groceries	204	94
All others	398	414
Total	59,199	41,759
Rëexports	1,270	1,371
Grand total	60,469	43,130

The most significant loss in Egypt's imports during 1926 occurred in yarns and textiles. This was a natural sequel to the cotton-price crisis, under which the importers experienced difficulty in meeting payments for their earlier commitments. Imports of cereals and agricultural products recorded another important reduction, represented in a decrease of approximately 40,000 tons from Australia, which normally supplies the bulk of the cereals. The United Kingdom was the chief source of imports during 1926, supplying 21.8 per cent of the total. France was the next important source, with 10.8 per cent, followed by Italy with 8.7 per cent. Egyptian exports to foreign countries, exclusive of raw cotton, were generally maintained. The actual loss in the value of raw cotton exported during 1926 was £E17,355,000, and the net loss in all categories after deducing the gains totaled £E17,440,000. Imports from the United States during 1926 amounted to $12,371,000 as compared with $10,581,000 in 1925. Egyptian exports to the United States were valued at $27,921,000, as compared with $42,056,000 in 1925. This reduction is accounted for almost entirely by the drop in price of cotton.

FINANCE. The financial position of the country during 1926 was strong despite the unfavorable developments in trade circles following the slump in cotton prices. The government reserve fund at the end of December, 1926, was £E31,000,000. While a draft of £E437,000 on this reserve fund was contemplated in order to balance the 1926–27 budget, actual receipts were considerably below estimates, so that a deficit of approximately £E2,000,000 was indicated. Customs receipts alone showed a drop of more than £E900,000. The state budget for the fiscal year 1927–28 showed estimated receipts and expenditures of £E38,677,000, or £E683,000 less than for the previous fiscal year. Receipts include the withdrawal of £E2,454,000, from the reserve fund, and estimated customs dues were lowered to £E11,003,000 from £E12,342,000. Reductions in expenditures were carefully spread over the entire budget. The appropriation for the ministry of foreign affairs was dropped from £E421,000 to £E236,000, entailing an expected reduction in the number of consuls and diplomatic representatives maintained abroad. The £E1,500,000 made available for new works in the department of irrigation was slightly less than that appropriated during the previous year. Railroads got £E6,494,000 as compared with £E7,018,000 in 1926–27. A bill was approved by the council of ministers proposing that the fiscal year begin on June 1, 1927, instead of April 1 as heretofore, and that the intervening months of April and May be added to the financial year 1926–27.

COMMUNICATIONS. Exclusive of sailing vessels, 3287 ships entered Egyptian ports during 1926, this being 50 vessels less than in 1925. A total of 4,157,000 tons of cargo was landed as compared with 4,496,000 in 1925. Departures show a corresponding decrease in the number of vessels leaving Egyptian ports, and cargo shipped out in 1926 declined to 1,316,000 tons from 1,425,000 tons in 1925.

With the change from narrow to standard gauge on the southern line of the Egyptian Government Railways, from Luxor to Shellal, 135 miles, the entire system of 2050 miles was made standard gauge and the time from Cairo to Shellal, 550 miles, was reduced by four hours. The Luxor-Shellal line was built originally as a military railway of 3½-ft. gauge and was 160 miles long. The new work included strengthening bridges and reballasting tracks. All this work was done by railway forces in about ten months at a cost of about $1,300,000 and without interrupting traffic on the narrow-gauge line.

Government. According to the constitution promulgated Apr. 19, 1923, Egypt was proclaimed a sovereign state under a hereditary monarch, with representative government. Equal rights, irrespective of race, language, or religion, were guaranteed, as was the liberty of the individual and religious belief. Executive power was vested in the king, who also exercises legislative power in concurrence with the legislature. The latter was to consist of a senate and a chamber of deputies, the senate to be composed of three-fifths elected by universal suffrage and two-fifths appointed by the king (the term of office is 10 years; one-half is renewed every five years); and the chamber of deputies to consist of members elected by universal suffrage for five years. The king can dissolve the chamber of deputies to which the ministers are jointly and separately responsible. Mohammedanism is the state religion and Arabic the official language. The king in 1927 was Fuad I, who acceded Mar. 15, 1922.

History

Resignation of the Cabinet. As noted in the previous Year Book a change had taken place in the Egyptian cabinet in June, 1926, largely as a result of the elections. The pro-British cabinet of Ziwar Pasha gave way to one headed by Adly Pasha. The natural leader of the Egyptian Nationalist group, Zaghlul Pasha, was not permitted to form a government because of his well known and often expressed hatred of Great Britain. Adly Pasha's first few months as the head of the government were fairly tranquil, but as time went on his position became more and more difficult because of conflicts with parliament and Adly, apparently, was very glad to resign on Apr. 18, 1927, when a minor matter of finance was decided against him. Once again, it seemed as though Zaghlul Pasha would be called upon to form a ministry, but once again British influences prevented his selection, although ill health was given as the public reason for his failure to accept office. Largely as a result of his work, however, a ministry was formed under the leadership of Sarwat Pasha, who was promised more cooperation in parliament than Adly Pasha had been able to command. The cabinet as reorganized was composed as follows: Prime Minister and Minister of Interior, Abdel Khalek Pasha Sarwat; Agriculture, Fathallah Pasha Barakat; Foreign Affairs, Morcos Pasha Hanna; Public Works, Osman Pasha Moharram; Wakfs, Negib Pasha Gharably; Finance, Ali Pasha Shamsy; Justice, Zaki Pasha Abdul Seud; Education, Mohammed Pasha Mahmud; Communications, Ahmed Pasha Khashaba.

Sarwat's experiences with Parliament were not much happier than those of Adly. Less than three weeks after his installation he came into conflict with the Nationalist element over a matter of appointment of mayors of towns and villages. The Parliament was anxious to have them elected instead of appointed by the government. Parliamentary leaders requested that Sarwat reinstate a certain mayor who had been dismissed and the prime minister took the stand that it was an unwarranted interference on the part of the legislative branch of the government with the executive branch and took immediate steps to resign. Zaghlul Pasha, however, stepped into the breach and mollified the premier to such an extent that he determined to continue in office. The course of the ship of state only ran smoothly for a short time, when another and more serious crisis occurred, this time over relations with Great Britain.

The British Note. The Egyptian Parliament made a proposal to increase the size of the Egyptian army and to place the control of it in the hands of the Egyptian government rather than in the hands of the British Sirdar. On May 30, the British government addressed a note to the Egyptian government on the subject of army administration in Egypt. The note, which was fairly moderate in tone, although concomitantly with it warships were sent to Alexandria and Port Said, aimed at the elucidation of some serious misunderstandings which had arisen in regard to the Egyptian army during the last few years.

The immediate occasion of the note was the decision of a committee of the Egyptian parliament to recommend the suppression of credits for the Sirdar. Until the murder of Sir Lee Stack in 1924 (see Year Book for 1924), the Egyptian army was under the command and the recognized control of a British Sirdar. No one was appointed to succeed Sir Lee Stack, although his work was taken over by an acting Sirdar. The acting Sirdar was never recognized by the Egyptian government, and his powers and authority had been steadily undermined by a series of administrative acts carried out by the successive Egyptian Ministries of War. The effect of these acts was a gradual diminution of British control over the Egyptian army, the reinstatement in important positions of officers who on critical occasions had taken a political part in opposition to Great Britain, and also an increase in the numbers and equipment of the army.

Although the contents of the British note were not published, it was stated that the special interests of the United Kingdom in the Egyptian army were emphasized, and the Egyptian government was requested to put forward proposals as to how the necessary British coöperation in the military affairs of the country might be most effectively secured. Upon the deliverance of the note the premier visited Zaghlul Pasha and consulted with him concerning its contents and the question of its answer. The Egyptian answer as finally delivered was in the form of a compromise and temporary agreement to maintain the status quo in the army and in the frontier's administration, at the same time safeguarding the authority and responsibility of the Ministry in these matters. The press drew the conclusion that while Great Britain was to remain in control of the army, it was to be enlarged in accordance with the wishes of the Egyptian parliament. Possibly as an aftermath to this exchange of notes King Fuad and Prime Minister Sarwat visited London early in July and were entertained by the British King and Queen. A serious loss to the Egyptian cause, particularly in the development of the Nationalist movement, was the death of Zaghlul Pasha (q.v.), the mainspring and fountain head of the independence movement in

Egypt. Many observers believed that with his passing, the hope of an independent Egypt, unchained to the political and economic ambitions of Great Britain, passed also. His place as leader of the Nationalist group was taken by Pasha Nahas, who announced that Zaghlul's policies would be carried on unchanged. See ARCHÆOLOGY.

EGYPTIAN EXPLORATION FUND. See ARCHÆOLOGY.

EICKEMEYER, CARL. American engineer, inventor and author, died at Brooklyn, N. Y., December 2. He was born at Yonkers, N. Y., Jan. 14, 1869, and studied at Cornell University, graduating as a mechanical engineer. His father, Rudolf Eickemeyer, invented the first rotary field alternating current motor, and made other inventions. The younger Eickemeyer began his professional career as superintendent of installation for the New York City Electrical R. R., the Lynchburg, Va., Electrical R. R., and other lines. Later he engaged in manufacturing, and in 1900 opened an office as an electrical engineer and devoted his time to designing and patenting automatic electrical pumps, gas radiators and other devices. He was the inventor of a single-weight disappearing gun carriage, an improved steel cross-tie, a shockless rail joint to eliminate vibration in railroad cars, a high-speed electric locomotive and a high-speed third rail. From 1918 to 1920 he served in the United States Army Officers' Reserve Corps. Mr. Eickemeyer traveled extensively among the Indians of the southwestern part of the United States, and conducted scientific expeditions in that region. He was the author of: *Over the Great Navajo Trail; Among the Pueblo Indians; The History of the Apache; Cinderella; The Giant Killer; The Trails of a Mormon; The Articles of Confederation for the Consolidation of the Peoples of the American Continent,* and *The Centre of the Universe,* an astronomical work.

EIGENMANN, CARL H. American zoölogist, died at San Diego, Cal., April 24. He was born at Flehingen, Germany, in 1863, and, going to the United States, was educated at the University of Indiana, graduating in 1866; he received the degree of Ph.D. in 1889. In 1891 he became professor of zoology at the University of Indiana, and in 1908 was elected dean of the graduate school. From 1909 to 1918 he served as curator of fishes at the Carnegie Museum, Pittsburgh, Pa., and he founded the biological station of the University of Indiana, serving as its director, 1895–1920. He was elected a member of the National Academy of Sciences, and was identified with many learned societies in the fields of natural sciences and exploration. He explored extensively in the western United States and Canada and in Cuba, British Guiana, Peru, Bolivia and Chile, and wrote many reports and monographs on subjects in natural science, especially fishes. He was an authority on the cave vertebrates of North America, about which he wrote extensively. His other writings include: *The Archiplata-Archhelenis Theory; The American Characidæ; The Freshwater Fishes of British Guiana; The Fishes of Western South America;* and *The Doradidæ.*

EINSTEIN THEORY. See PHYSICS; RELATIVITY.

EINTHOVEN, WILLEM. Dutch physiologist and recipient of the Nobel prize for medicine for 1924, died at Leyden, September 28. He was born at Samarang, Java, May 21, 1860, and was educated at Utrecht and at the university there, being a scholar of Donders, Koster and Snellen. He was made assistant of Donders and Snellen in 1879. He became doctor of medicine in 1885, and in 1886 was made professor of physiology at the University of Leyden, holding the chair at the time of his death. In 1924 Dr. Einthoven visited the United States, opening the Dunham lectures in Boston, and it was there that he heard of the award to him of the Nobel prize for "his discovery of the mechanism of the electro-cardiogram." He was the inventor of a special galvanometer used in connection with heart studies. In 1926 he was elected a foreign member of the Royal Society, and he received the degree of LL.D. from Aberdeen University. His experimental work did much to promote a better understanding of diseases of the heart through the observation and interpretation of clinical phenomena, and his apparatus soon found uses in the more important hospitals and the clinics of heart specialists. He wrote extensively for scientific journals, preparing a chapter in Heyman's *Handbuch der Laryngologic und Rhinologie,* and one in Bethe's *Handbuch der Normalen und Pathologischen Physiologie.* His work covered the fields of physics, physiology and medicine, and apparatus designed by him were marvels of delicacy and precision.

ELECTRICAL ENGINEERS, AMERICAN INSTITUTE OF. A national organization representing the electrical engineering profession, founded in 1884. The objects of the Institute are the advancement of the theory and practice of electrical engineering and of the allied arts and sciences, the maintenance of a high professional standing among its members, and the development of the individual engineer. It is governed by a board of directors, elected by the membership, consisting of a president, the two junior past presidents, 10 vice presidents, 12 managers, and a treasurer. In 1927 there were 52 sections of the Institute located in various cities throughout the country and 95 branches in colleges giving courses in electrical engineering. Three annual conventions are held, in addition to regional meetings and local section and branch meetings. Much of the Institute's work is accomplished through its standing and technical committees, of which there were 36 in 1927. It maintains, in coöperation with other national engineering societies, the Engineering Societies Library and a national employment service. There are three grades of members, as follows: associate, member, and fellow; and the total membership on Oct. 1, 1927, was 18,701. The annual award of the Edison Medal, founded by associates and friends of Thomas A. Edison, went to Dr. William D. Coolidge of the General Electric Co., "for his contributions to the incandescent electric lighting and the X-ray arts."

The principal publications of the Institute are the monthly *Journal,* the annual *Transactions,* the *Standards of the A.I.E.E.,* and the *Year Book.* The officers elected for 1927–28 were: President, Bancroft Gherardi; junior past presidents, C. C. Chesnev, and M. I. Pupin; vice presidents, H. M. Hobart, George L. Knight, B. G. Jamieson, H. H. Schoolfield, A. E. Bettis, O. J. Ferguson, E. R. Northmore, J. L. Beaver, A. B. Cooper, C. O. Bickelhaupt; managers, John B. Whitehead, J. M. Bryant, E. B. Merriam,

M. M. Fowler, H. A. Kidder, E. C. Stone, I. E. Moultrop, H. C. Don Carlos, F. J. Chesterman, F. C. Hanker, E. B. Meyer, and H. P. Liversidge; national treasurer, George A. Hamilton; national secretary, F. L. Hutchinson. The Institute's national headquarters are in the Engineering Societies Building, 33 West 39th Street, New York, of which it is joint owner with three other national engineering societies.

ELECTRICAL INDUSTRIES. Increasing employment of electrical energy in manufacturing processes was an outstanding feature of the year. Steel works, cement mills, welding, heat-treating of metals, improved electric furnaces, etc., marked American industrial progress. The new Homestead Steel mills, near Pittsburgh, Pa., had electric equipment aggregating 54,000 h.p. in 11 units, ranging from 1500 kw. motor-generator sets up to 7000 h.p. reversing-mill motors. The largest electric oven ever built was put in service for enameling stove parts. It had two chambers 125 ft. long and was arranged to have a high-temperature zone 20 ft., 8 in. long in the centre. Electric heat was employed in an ingenious water-proof device for melting snow and ice in and around switches in railroad tracks and was reported to be highly satisfactory. In a large brass plant it was found that an electric oven saved much material that formerly was ruined by excessive or deficient heating. Heat-treating, tempering, etc., of steel parts large and small, was very widely employed, as it was said better control of temperature could thus be obtained than by any other means. European industrial establishments also were installing electric power in many large plants.

There was considerable increase, too, in the employment of electric furnaces in the brass industry, mostly in small sizes, of a capacity up to 200 to 300 kv-a. Three-phase arc furnaces, for some time in use in steel foundries, were in certain mills superseded by the coreless-type induction furnace, known as the "high-frequency" furnace for the production of special high-grade alloy steels.

ELECTRIC LIGHTING. The year was noteworthy in respect of sales of incandescent lamps, the largest amount in the history of the United States. An authoritative estimate of the volume of such sales fixed the total at 320,000,000 large and 218,000,000 miniature lamps; the former showing an increase of 8,000,000 (about 2½ per cent) and the latter an increase of 16,000,000 (about 8 per cent) over sales during 1926. For the illumination of aviation fields and other large spaces, 10-kw. Mazda lamps were developed; but, owing to the intense heat of such units, some trouble was experienced by reason of the deterioration of the basing cement. This was overcome by the aid of a new clamp base, mechanically secured to the lamp.

Improved Mazda lamps of 100 watts were brought out for moving picture projection having a filament coiled to much smaller dimensions than in former types, thus giving a smaller area to the light source and thereby intensifying the sharpness of focus on the screen. For aviation beacons a new type of neon quartz tube lamp was developed and put in use that possessed the advantage of operation on a low-voltage circuit, as it had a hot cathode in the tube that gave sufficient electron emission to supply current for the luminous discharge. This lamp was made of a quartz tube 1½-inch in diameter, and, as almost all of its visible radiation was within the long wave-lengths, it was especially valuable by reason of its visibility through fog, aviators having reported having seen its orange-red glow on clear nights at a distance of 75 miles. It was reported to have very long life, one such lamp having been tested for 3000 hours without showing any signs of deterioration.

A great increase in display and sign illumination was noticeable during the year. The tower of the Paramount Theatre in New York City was illuminated nightly by 473 floodlights, giving a very brilliant effect and incidentally involving a total load of 15,000 kw. Illumination of the Holland vehicular tunnel under the Hudson River between New York City and Jersey City was effected by the installation of 150-watt, 115-volt, clear-bulb lamps spaced 20 ft. apart through the tunnel and set with reflectors in the white-tiled walls, giving an excellent diffusion of light.

ELECTRIC POWER TRANSMISSION. The super-power system under discussion for some years past was beginning to take shape in the New England and Middle States, as well as to a considerable extent in the Middle West. This was in process of accomplishment through the construction of mammoth generating stations, distributing their output over large areas, and by the interconnection of their lines with those of other similar plants for the purpose of exchanging electricity with them and thus reaching a constantly increasing number of consumers, who were thereby supplied more reliably and economically than ever before. Combination steam and hydro-electric stations were becoming increasingly numerous and a better balanced load was obtained for all stations interconnected.

To take care of the augmented output of large generators and to keep pace with the sudden demands for power characteristic of modern systems of distribution, transformers of unusual capacity and ruggedness were designed and built, with especial reference to the dissipation of the large amount of heat generated in operation. What was reported to be the largest single-phase transformer ever built was put in service by the Philadelphia Electric Co. during the year. It was rated at 33,333 kv-a, with an ultimate rating of 50,000 kv-a. For cooling purposes, a motor-operated blower directing a strong blast of air against the radiators that were an integral part of this transformer dissipated the heat and prevented undue temperature rise of the oil insulation. Oil switches and circuit breakers were developed and installed in sturdier and more reliable design to take care of the enormous quantities of energy due to short circuits and lightning discharges.

There were notable improvements in the design and manufacture of high-tension underground cables for power transmission. In Chicago, the Commonwealth Edison Co. put in service a six-mile line (18 cable miles) of 132-kv., single-conductor, oil-filled cable. In New York City, the Edison-United companies installed a 12-mile (36 cable miles) cable of the same capacity. Before making service connections, these cables were tested up to 300,000 volts without showing any defects. Being designed for a 91,000 kv-a load, they could accommodate the output of the largest generators in use. A feature of their construction was the employment of an oil-filled core, the oil being kept under pressure so as to allow for contraction and expansion at the joints due to temperature changes. For use in grounding high-tension power systems, very large current-limiting reactors were built. One of these, for use at Baltimore, Md., connected to a 13,200-volt, 25-cycle system, had a 4-minute rating of 80,000 kv-a, 10,000 amperes and weighed 8 tons. Much valuable information concerning lightning discharges was obtained with the aid of the newly-developed cathode-ray oscillograph, by means of which the behavior of various types of arresters under service conditions could be studied and the effects of high-tension surges on transmission lines more readily investigated.

ELECTRIC RAILWAYS. See RAILWAYS under ELECTRIFICATION; also RAILWAYS, ELECTRIC.

ELECTRONS. See PHYSICS.

ELEMENTS, CHEMICAL. See CHEMISTRY.

EMPLOYER'S LIABILITY. See WORKMEN'S COMPENSATION.

ENCEPH'ALITIS, EPIDEMIC. Kreuser and Weidner (*Deutsche medizinische Wochenschrift*, Sept. 9, 1927) pointed out that this affection was undergoing marked changes in type with the march of years, although its existence had only been recognized since 1916. Originally the patients were attacked suddenly and violently with a cerebral affection which manifested itself largely in symptoms referable to the cranial nerves. Now, judging by the cases seen in 1926, the onset in place of being sudden and violent is gradual and insidious and the manifestations are chiefly spinal; in short, the morbid process appears to be descending from the brain to the spinal cord. In many cases a condition hardly distinguishable from influenza seems to have preceded the evolution of the disease. The most striking symptoms have to do with the heart and vasomotor system, the patients suffering from severe palpitation and fear of death with sweating, salivation, cold and livid hands and feet and certain alterations of personality, such as neurasthenia, hypochondria and various psychopathic manifestations. As depicted by the authors it is difficult to understand how some of these cases could have been recognized as encephalitis at all, although it is likely that the authors confined their description to the more atypical symptoms, omitting those on which the diagnosis was based.

Over 10 years' experience with this new malady has shown that it cannot be reached by any form of drug treatment including the use of serums and nonspecific protein treatment. At least this was the conclusion reached at the psychiatric and neurologic clinic of the University of Breslau, as related by Dr. G. Winklor in the *Klinische Wochenschrift* for Aug. 6, 1927. The treatment must therefore be entirely symptomatic including attempts to minimize the damage effected by the disease. There are three resources available; namely, a movement cure to develop the functions of new nerve centres and paths; orthopœdic correction of certain motor anomalies, and finally mental therapy. These measures may be used jointly, although each form has its own special uses. Certain troublesome symptoms due to a spasmodic condition of muscles have been controlled by proper supporting and retentive apparatus. The course of muscular exercises does not differ in the main from those in use for other chronic nervous affections, such as locomotor ataxia, but must be strictly individualized for each patient. Psychic treatment, which may be carried out in different forms, is useful to overcome the peculiar lack of initiative, the apathy and mental depression. Naturally the other forms of treatment, even comprising drugs, may exert a secondary suggestive action.

ENDOWMENTS, COLLEGE. See UNIVERSITIES AND COLLEGES.

ENGINEERING. See AQUEDUCTS; BOILERS; BRIDGES; CANALS; DAMS; DYNAMO-ELECTRIC MACHINERY; FIRE PROTECTION; GARBAGE AND REFUSE DISPOSAL; PORTS AND HARBORS; RADIO TELEGRAPHY AND TELEPHONY; TUNNELS; ETC.

ENGINES, GAS OR OIL. See INTERNAL COMBUSTION ENGINES.

ENGINES, STEAM. See STEAM ENGINES; STEAM TURBINES.

ENGLAND. The term in its strictest sense applies to the largest and most densely populated part of the island of Great Britain. As employed in reference to the government it often indicates the United Kingdom and Ireland. See GREAT BRITAIN.

ENGLAND, CHURCH OF. The established church of England. Its faith is represented in the United States by the Protestant Episcopal Church (q.v.). The King is the supreme governor of the church, possessing the right to nominate to vacant archbishoprics and bishoprics. The King and the First Lord of the Treasury also appoint to certain deaneries, prebendaries, and canonries, and the Lord Chancellor to certain canonries. For administrative purposes the country is divided into two provinces: the Convocation of Canterbury and the Convocation of York, each under the control of an archbishop. The Church Assembly, established in 1920 "to deliberate on all matters concerning the Church of England and to make provision in respect thereof," consists of three Houses, composed of bishops, clergy, and laity respectively, the laity being elected every five years by the lay members of the Diocesan Conferences, which consist of representatives elected by members of the church. Every measure passed by the Church Assembly must be submitted to an Ecclesiastical Committee, consisting of 15 members of the House of Lords and 15 members of the House of Commons. This Committee reports on each measure to Parliament, and the measure becomes a law if it is passed by both Houses of Parliament. Parochial affairs are managed by the lay members of the Diocesan Conferences.

The outstanding event of the year under review was the passage of the Revised Prayer Book Measure through the Church Assembly, its subsequent approval by the House of Lords and its rejection by the House of Commons. The final revision of the book occupied the House of Bishops from January 12 to 22 and again from March 2 to 5. Before the revision was finally completed the book was informally communicated by the bishops in a provisional form to the Lower Houses of Convocation of Canterbury and York to give them an opportunity of making further suggestions. The book in its final form was again submitted to the two convocations in accordance with the standing orders of the Assembly, sitting together on March 30. Consent was given by the convocations to the measure being laid before the Assembly for final approval, and this stage was reached at the summer session, the debate occupying two whole days, July 5 and 6. Final approval was moved by the Archbishop of Canterbury and carried by 517 votes to 133. The measure was then submitted to Parliament; the debate in the House of Lords on the motion that the measure be presented to His Majesty for royal assent took place on December 12, 13, and 14, and was carried by 241 to 88. In the House of Commons the motion was moved on December 15 and was rejected by 238 votes to 205.

In addition to the work carried out in connection with the Revised Prayer Book, many important matters were dealt with by the Church Assembly which met for three sessions in February, July and November, including: The Ecclesiastical Commissioners Measure, which makes further provision by additional stipends or otherwise for the unbeneficed clergy from the Common Fund of the Ecclesiastical Commissioners; Sale of Parsonages Measure; and the Representation of the Laity Measure. Two reports, of the Cathedrals Commission and the Special Clergy Commission, were also made to the Church Assembly during 1927, and the following measures received the royal assent: Indian Church Measure, 1927, which provides for the Church of England in India becoming a voluntary association; the Clergy Pensions Measure, 1927; and the New Dioceses Measure. The Convocations of Canterbury and York, which met in February and March, were devoted entirely to the Revised Prayer Book.

Among the principal church events of the year were: An Order in Council constituting the new dioceses of Portsmouth and Guildford on May 1, and the new diocese of Derby on July 7; the consecration of Canon R. G. Parsons, D.D., as first Suffragan Bishop of Middleton, in York Minster, by the Archbishop of York, on January 25, and the consecration of the Rev. G. J. Walsh as Bishop of Hokkaido and Dr. G. A. Chambers as Bishop of the new diocese of Tanganyika, in Canterbury Cathedral, by the Archbishop of Canterbury on November 1; a Church Congress which took place at Ipswich from October 3 to 7, at which the general subject was "The Kingdom of God in a Country Diocese," and the 14th Conference of Modern Churchmen at Birmingham from August 22 to 29, at which the subject was "The Modern Movement in the Church of England."

The following were among the chief church appointments in 1927: The Venerable C. M. Blagden, Archdeacon of Coventry and Rector of Rugby, as Bishop of Peterborough in place of Dr. C. C. B. Bardsley translated to the new see of Leicester; the Rev. D. W. Bentley, D.D., assistant Bishop of Jamaica, as Bishop of Barbados, in place of Bishop Berkeley who resigned; the Rt. Rev. J. H. Greig, Bishop of Gibraltar, as first Bishop of the new Diocese of Guildford; the Venerable E. N. Lovett, C.B.E., Archdeacon and Vicar of Portsmouth, as first Bishop of the new Diocese of Portsmouth; the Rt. Rev. H. E. Bilbrough, D.D., Bishop Suffragan of Dover, as Bishop of Newcastle; Canon F. C. N. Hicks, D.D., Vicar of Brighton, as Bishop of Gibraltar; the Rev. R. E. Ramsay, M.A., as Suffragan Bishop of Malmesbury; the Rev. B. C. Roberts, M.A., as Bishop of Singapore; the Rev. E. C. Pearce, as first Bishop of the new Diocese of Derby; the Venerable J. C Macmillan, as Bishop Suffragan of Dover; and the Rt. Rev. H. Gresford Jones, D.D., as Suffragan Bishop of Warrington.

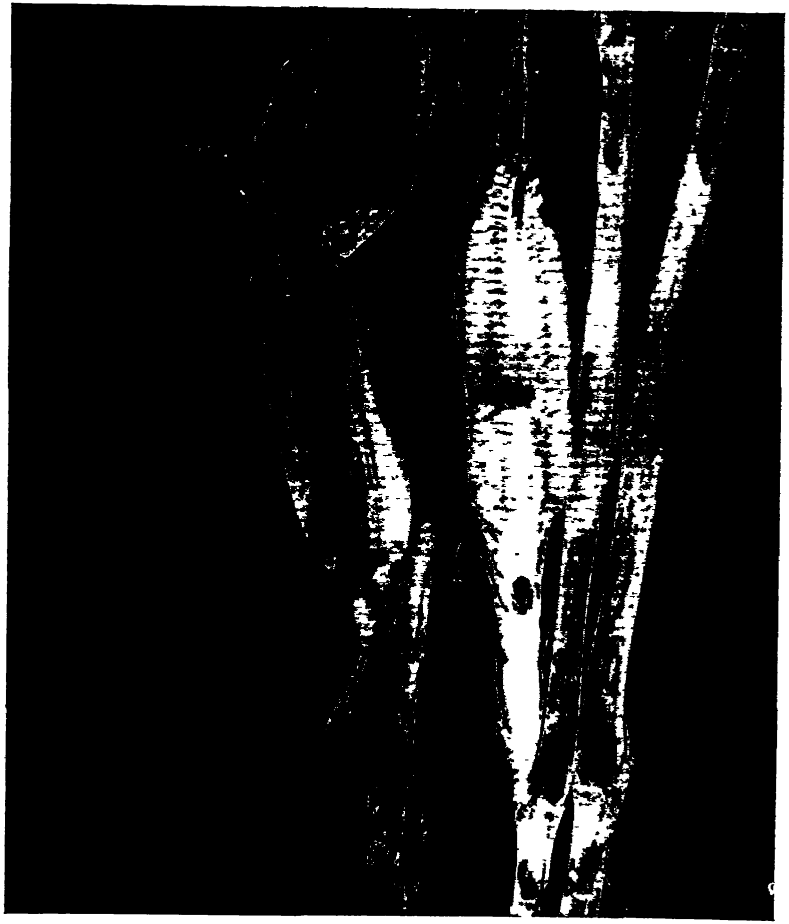
At the July session Lord Grey, Chairman of the Central Board of Finance, presented the Church Assembly Budget for 1928. It amounted to £148,241, the chief items being £32,000 for religious education; £25,000 for training new candidates for the ministry; and £50,000 for the clergy pensions scheme. The contributions to the 1927 budget from all sources up to the middle of December amounted to £64,784 and 19s. The sums contributed by the dioceses were slightly below the level of the previous year, partly due to the fact that those situated in industrial districts had felt the effects of the prolonged labor disputes of the previous year. The majority of the missionary societies benefited financially from the response made to the World Call.

Officers of the Assembly for the year were: Chairman, the Archbishop of Canterbury; vice chairman, the Archbishop of York; treasurer, Col. Sir R. Williams, Bart; secretary, Sir Philip W. Baker-Wilbraham, Bart.; chairman of the House of Bishops, the Archbishop of Canterbury; chairman of the House of Clergy, the Dean of Westminster; chairman of the House of Laity, the Earl of Selborne, K G. Headquarters are at 8, Dean's Yard, Westminster, S.W. 1, London.

NECROLOGY. Among the well-known churchmen whose deaths were reported were: the Rt. Rev. C. R. Scott, formerly Bishop in North China; the Rt. Rev. C. J. Ridgeway, D.D., formerly Bishop of Chichester; Dr. J. W. Willink, Dean of Norwich; and the Very Rev. A. E. Burn, D.D., Dean of Salisbury.

ENGLISH, JOHN MAHAN. American theologian, died at Newton Center, Mass., May 17. He was born at Tullytown, Pa., Oct. 20, 1845, and graduated from Brown University in 1870 and Newton Theological Institution in 1875. He was ordained to the Baptist ministry in the same year. Previous to studying theology he had taught the classics in Suffield Academy, Suffield, Conn., and at Denison University, Granville, Ohio. His first pastorate was at Gloucester, Mass., where he was at the First Church from 1875 to 1882, going thence to the Dudley Street Church in Boston. He was professor of homiletics and pastoral duties in the Newton Theological Institution from 1882 to 1918, when he became professor emeritus. He was lecturer on homiletics at Andover Theological Seminary, 1895–96, and the Hartford Theological Seminary, 1922–23. He was a trustee of Brown University and president of the Northern Baptist Educational Society, 1903–08. His published works include: *For Pulpit and Platform; The Minister and His Ministry.*

ENTOMOLOGY, ECONOMIC. The year 1927 was notable in the United States in the field of economic entomology for the inauguration of a campaign against the European corn borer with an appropriation of $10,000,000 by Congress. This pest having devastated the cornfields of Ontario was spreading into the great corn belt of the United States and threatened disaster to a $2,000,000,000 industry. Second perhaps in importance was the appearance of the Mexican fruit fly in the citrous orchards of the



TYPICAL INJURY BY THE EUROPEAN CORN BORER TO STALKS OF CORN. THE FIRST GENERATION OF THE PUPÆ ARE SHOWN IN POSITION

CLOSE VIEW OF HILL OF CORN RUINED BY THE EUROPEAN CORN BORER. THE STALKS ARE SECTIONED TO SHOW THE EXTENSIVE DAMAGE WITHIN

THE EUROPEAN CORN BORER

lower Rio Grande Valley in Texas, and its threatened menace to citrous and all tree fruits in the United States. Another noteworthy event was the retirement of Dr. Leland Ossian Howard as Chief of the Federal Bureau of Entomology, after a service of 50 years with the Bureau, during the last 33 of which he had served as its chief. Dr. Howard was succeeded by Dr. Charles L. Marlatt, whose service with the Bureau for 40 years had included 33 as assistant or associate chief, and who had served as chairman of the Federal Horticultural Board since its organization, having been instrumental in the passage of the Plant Quarantine Act of 1912.

THE EUROPEAN CORN BORER CONTROL CAMPAIGN. The destruction of the corn crop that took place in southern Ontario in 1926 was observed by hundreds of business men, bankers, and State and Federal government officials from the United States with great concern, and its further advance in the corn belt made it evident that immediate steps must be taken to check it if possible. A voluntary committee of corn growers, specialists, and business men decided to appeal to Congress for an appropriation of $10,000,000 to deal with the emergency. This action, indorsed by the Secretary of Agriculture, was approved by the President, with the result that a bill passed Congress February 23 making that amount available. The necessity for obtaining State regulatory legislation delayed the work until March 14, when the first equipment was purchased and operation actively commenced. The work was conducted under the leadership of the Director of Scientific Work and the head of the Division of Cereal and Forage Crop Insects of the Federal Department of Agriculture, who marshaled and coördinated all the available resources of that Department. The administrative officer, with headquarters at Toledo, Ohio, working in close coöperation with the officials of the several States, rapidly assembled a competent and efficient field organization, which instituted a clean-up campaign to hold in check the spread and control the increase of the insect. Two and one-half million acres of cornland, extending over a distance of 350 miles from New York to Indiana and including 64 counties, all but 500,000 acres of which were handled by more than 300,000 coöperating farmers, were cleaned up during the spring. The work consisted particularly in the plowing under or burning of cornstalks and débris to destroy the hibernating worms. Experts in agricultural engineering, agronomy, genetics, ecology, economics, animal husbandry, and extension from State experiment stations, agricultural colleges and the Federal Department of Agriculture, as well as entomologists, coöperated in the control campaign, and the Post Office Department assisted by placing important literature in the hands of each box holder on the rural routes in the clean-up area. The clean-up campaign came to an end on July 2, and, while the weather conditions had been most unfavorable, the results obtained were considered little short of marvelous. Estimates based on actual counts by men trained in the work indicated that at least 95 per cent of the corn borers throughout the treated area had been destroyed. It was announced by the U. S. Department of Agriculture that as a result of the spring campaign there was only one-sixth the normal increase in the number of borers in the western infested area. The territory found newly infested during the year included areas in 3 counties in Pennsylvania, 5 counties in Ohio, 7 counties in Indiana, and 12 counties in Michigan.

EUROPEAN CORN BORER INVESTIGATION. An appropriation of $685,120 was made by Congress for research and quarantine work with this pest, an increase of $200,000 over that of the preceding year. The introduction of parasitic enemies from Europe progressed rapidly, nearly 500,000 beneficial insects having been liberated in the infested areas in the Central West, and 1,300,000 in the infested fields in New England. Six species were recovered in the field, indicating their establishment in America. Life history studies extending over four years showed that, under southern New Hampshire conditions, the progeny of the overwintering generation exhibit both a one-generation and a two-generation phase. It was found in Ohio that the longer corn is allowed to stand after it matures the lower down the corn borers make their way and the greater the number left in the stubble. Shredding the fodder destroyed 95 per cent of those that passed through the shredder, while cutting the stalks into lengths of one inch or less destroyed practically all the borers.

MEXICAN FRUIT FLY INFESTATION. This citrous-infesting pest, a native of southern Mexico, was discovered in May to infest grapefruit orchards in Cameron and Hidalgo Counties, Texas, where some 30,000 acres are now planted, a total of 685 specimens being found in 12 orchards located at various points in the two counties. There followed a campaign of clean-up and disposal of all hang-over citrous and other fruits in the district that would serve as hosts to carry the insect over to the succeeding year, conducted by the Federal Horticultural Board in coöperation with the State officials. Early in August quarantines were promulgated by the U. S. Department of Agriculture and the State of Texas, placing restrictions on the movement of susceptible fruits from the infested area, and calling for drastic controls within the area with a view to eradicating it there. Controls were placed on permitted fruit to limit its movement out of the district to five months of the year, or from October to February, with the object of thus maintaining a seven months' starvation period in which there would be no fruit suitable for propagation of the pest.

PINK BOLLWORM. The pink bollworm infesting cotton was found to have spread, probably from Mexico, into three counties in southwestern New Mexico and three counties in southeastern Arizona, some 10,000 acres consisting of small areas more or less widely separated by stretches of mountain and desert being infested. An intensive inspection was made of the 1926 crop of cotton in the invaded counties, and clean-up work was conducted in infested fields so far as possible by the Federal Horticultural Board in coöperation with the two States. The pest appeared to have been exterminated from the fields found infested in eastern Texas and Louisiana, no evidence of any renewal of infestation having been found since 1921. The infestation in the old area along the Mexican border west of the Pecos River remained about the same as it was in 1926.

THURBERIA WEEVIL SPREAD. The Arizona wild-cotton weevil spread widely from its native host and home in the mountains of southeastern

Arizona into some 1500 acres of recently developed cotton areas in Cochise and southern Graham counties, and a vigorous clean-up was made of infested fields.

COTTON BOLL WEEVIL. Infestation by the boll weevil was particularly high in the Piedmont region of the Cotton Belt. Sodium fluosilicate was found more effective against it than calcium arsenate in North Carolina. The greater part of the poison that kills the weevils was found, in Texas, to be picked up when traveling over the plants rather than by ingesting it while actually feeding.

COTTON FLEA HOPPER. The cotton flea hopper caused but little commercial damage to the cotton crop except in a few isolated fields in Texas. Dusts consisting of sulphur or equal parts of sulphur and calcium cyanide gave good control when applied once a week.

THE JAPANESE BEETLE. This beetle continued its spread, having been found in several counties on Long Island and in Westchester County, N. Y., and at Stamford and Bridgeport, Conn. It spread westward as far as Harrisburg, Pa., and established numerous colonies in northern New Jersey. Its spread southward was very small, only one additional township in Delaware being found infested. Within the infested area the beetles became exceedingly numerous over a territory of approximately 700 square miles. It was found in New Jersey that the larvae survive in cranberry bogs that are flooded for four months during the winter and spring.

THE ASIATIC BEETLE. The beetle *Anomala orientalis*, which is related to and resembles the Japanese beetle, discovered several years ago infesting lawns at New Haven, Conn., had spread, and in 1927 occurred on Long Island and in Westchester County, N. Y. It is primarily a pest in the grub stage to lawns and perennial plants, the adults apparently causing but slight injury.

JAPANESE GARDEN BEETLE. A destructive beetle, *Aserica castanea*, hitherto known to occur only on the islands of Japan, was discovered to have been established for several years in Northern New Jersey, Eastern New York, and on Long Island.

AUSTRALIAN VEGETABLE WEEVIL. This weevil continued to be a serious pest of vegetables in Mississippi, and appears to have become firmly established in California in the San Francisco Bay section.

MEXICAN BEAN BEETLE. This pest had spread to and was occupying the entire East Central and Middle Atlantic region excepting the Coastal Plain. It occurs as far north as southern Ontario in Canada, southeastern Michigan, westernmost New York east to Steuben County, the western part and the southern border of Pennsylvania east to Lancaster County, and western Maryland. But little advance was made to the west. In insecticide tests in Kentucky, calcium arsenate one part and hydrated lime nine parts gave the best results, only 2.85 per cent of the plants being injured.

THE ALFALFA WEEVIL. The alfalfa weevil was more destructive in eastern Idaho than in any year since 1921. A very slight extension of it took place in Colorado, its principal spread being along the Wyoming-Nebraska State line. The boundary of weevil-infested territory was everywhere in mountainous country where there were few alfalfa fields.

ORIENTAL PEACH MOTH. This fruit moth continued to cause serious injury to the peach, quince, etc., but investigations indicate that it is not likely to become a serious pest in Georgia and other southern peach districts. In control work in New Jersey, cultivation and the paradichlorobenzene treatment destroyed 86 per cent of the hibernating larvae, indicating that many overwinter in the upper portion of the tree and in sufficient numbers to constitute a continuance of infestation from year to year. Bait pails were used satisfactorily in Pennsylvania in capturing the moths, nonfermenting baits being found most practical. A parasite was very prevalent in New Jersey, causing an enormous reduction in the injury caused.

CODLING MOTH. This pest continued to hold its important place, and was the source of much investigation. It was recorded as attacking soft fruits in Colorado and cherries in Oregon. Tests indicate that the bands used as cocooning traps may be treated with a chemical toxic to the larvae, such as beta-naphthol and an oil emulsion. A coöperative attack against it in a fruit district in New Jersey having a very high infestation demonstrated that it can be brought under control by the careful and thorough application of the available knowledge.

DATE SCALE ERADICATION. The eradication work with the destructive Parlatoria scale has resulted in its complete elimination from the Salt River Valley in Arizona. At Yuma, Ariz., and in the Imperial and Coachella Valleys of California it still persisted, but was so scarce as to be only rarely located. The other scale pest still infested the palms, but was kept under control by spraying.

INSECTICIDES. The silicofluoride dust continued to be employed with success in insect control. It was the only insecticide which actually killed large numbers of the striped cucumber beetle in Arkansas and at the same time protected the plants for a number of days against the migrating beetles. Used in grasshopper baits in Colorado, it was more quickly and highly effective than the arsenicals. Used against the sugar cane borer in Louisiana its water-soluble elements acted both as a stomach and contact poison to the borer and may destroy two-thirds of the larvae in corn and cane. It was found more effective against the leaf weevil in North Carolina than calcium arsenate. Equal parts of sulphur and calcium cyanide were effective against the cotton flea hopper in Alabama. In fumigating citrous in California, less leakage through the tent took place where calcium cyanide was used than where the liquid cyanide was the source of the gas. Applied in the open furrow and covered by the turning furrow-slice, calcium cyanide killed 86 per cent of the wireworms. In Florida 95 per cent of the whitefly larvae and purple scale and 96 per cent of the red scale on citrous were killed by calcium cyanide. Diluted with two parts of sulphur, the calcium cyanide satisfactorily controlled the bean leafhopper in North Carolina, and in Delaware it was more effective than nicotine lime dust against the grape leafhopper. Paradichlorobenzene was used successfully against the underground form of the woolly apple aphid in the nursery in Tennessee, and against the black peach aphid in Ohio. Dissolved in the high-test gasoline and applied in liquid form around the base of peach trees, it was effective against the peach borer, Airplane Dusting. The airplane continued to be used with success in the application of insecticide dusts for the control of tree- and field-crop insects. In Louisiana the sugar cane borer was fought by the application of 20 pounds of silicofluoride per acre in this way. In Wisconsin the hemlock span worm, a single defoliation by which kills the hemlock, was successfully controlled over an area of some 1700 acres by the application of 20 pounds of calcium arsenate per acre in this way. It was used with success experimentally in applying Paris green to destroy the malaria mosquito breeding in a 500-acre South Carolina pond covered with floatage.

Apiculture. The demonstration of a method of instrumental insemination of the honey bee by Dr. L. R. Watson and his description of the technique perfected mark a long step forward and was the most noteworthy event of the year in the field of apiculture, opening as it does the way for improvement of the honey bee.

Insect Transmission of Plant Diseases. In Indiana the spinach aphid, which transmits tomato mosaic, was proved to be the principal agent in the dissemination of potato leaf roll, and the potato leafhopper to transmit the disease to a lesser degree. The potato leafhopper was found in Wisconsin to cause the yellowing of the margins of apple leaves, and alfalfa yellows was found both in Wisconsin and Tennessee to have been caused by it.

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EPILEPSY. The fasting treatment of epilepsy which can be traced back to 1910 was tested by a number of clinicians but it soon became evident that its value is only palliative, for with the resumption of food the seizures return. About 1921 it seems to have occurred simultaneously to different observers that the undoubted benefit derived from fasting might be attributable to something beyond the actual deprivation of nourishment. As has long been known, the act of fasting sets up a general state known as acidosis, in which certain substances appear in the urine (diacetic acid, etc.). As it proved out of the question to administer these substances with any prospect of success, a diet was devised which is capable of causing an acidosis, consisting of low protein, low carbohydrate and high fat. It was found that this so-called ketogenous diet was able to influence favorably the course of epilepsy, at least in children. Nothing was published on the subject until some years had passed, when in 1924 Wilder of the Mayo Clinic and Petermann of Milwaukee announced that striking improvement had been established in the epilepsy of childhood. A distinction must be made between acidosis, which is a generic term, and ketone acidosis or ketosis which is a special type of acidosis. Apparently both elements are requisite to secure the good results—an acidosis and the ketosis. The ketogenous diet is preceded by a few days of fasting. In the *Journal of the American Medical Association* for June 11, 1927, Dr. Peterman of Milwaukee announced that the fasting and ketogenous diet had proved itself by far the most effective means of treating epileptic children and in the same periodical for June 25, Dr. Helmholtz, the pediatrician of the Mayo clinic, gave the results of five years of experience with the diet in the true epilepsy of childhood. In theory the younger the patient the better the outlook. The characteristic of the ketogenous diet is its richness in fat, and the aim is the production of diacetic acid in the urine. It should be remarked that ordinarily acidosis is most unwelcome, representing as it does a pathologic state, but in connection with epilepsy no ill effects have been experienced even when the diet has been maintained for a long time. Helmholtz had treated 91 epileptic children during the five-year period and over half (54 per cent) have responded favorably to the treatment. Of this number about a third of the whole (31 per cent) enjoyed such long remissions that they may be regarded as cured. At the same time 46 per cent received no benefit whatever. When it is borne in mind that the ordinary recovery rate of true epilepsy is put at not much above 5 per cent the success of this resource must be characterized as brilliant. There was no evidence submitted that the diet can favorably influence adult epilepsy.

EPI'RUS. A geographical expression applied to a territory, the northern part of which belongs to Albania and the southern part to Greece. The boundaries are indefinite. The Greek portion corresponds to the departments of Yanina and Prevesa, with populations in 1923 of 173,304 and 52,462 respectively. Northern Epirus had an estimated population of 250,000.

EPISCOPAL CHURCH. See Protestant Episcopal Church.

EPWORTH LEAGUE. See Methodist Episcopal Church.

ERGOSTERIN, ERGOSTEROL. See Food and Nutrition; Rickets.

ERICSON. John Ernst. American civil engineer and city engineer of Chicago, died in that city, April 16. He was born in Stockholm County, Sweden, Oct. 21, 1858, and, after graduating from the Royal Polytechnic Institute, Stockholm, in 1880 went to the United States. After serving as resident engineer of the Toledo, Cincinnati and St. Louis R. R., 1881–82, he became connected with the United States Corps of Engineers until 1884, when he entered the Chicago water department as a draftsman. In 1885 he was made an assistant engineer of the bureau of engineering, and in 1889–90 was assistant chief engineer of water works at Seattle, Wash. In 1892 he returned to the bureau of engineering of Chicago, becoming first assistant engineer in 1893 and in 1897 city engineer, a position he held at his death. He resigned in October, 1919, but acted as consulting engineer until 1923, when he was reappointed. Ericson's work was specially connected with the development of the Chicago water supply system. He connected the supplies of several annexed towns so as to form a unified system, and built new lake and land tunnels for the city proper. He also improved the distribution system and introduced chlorination, and shortly before his death undertook investigations and improvements for the filtration of the city's water on a large scale. He was able to develop metering of Chicago's water to check waste, and extensive progress was made in this direction, although in 1927 Mayor Thompson proposed to repeal the metering ordinance. From 1911–14 he was chairman of the harbor and subway commission of the city. A special type of bascule bridge was designed by Mr. Ericson. In 1908 he declined the post of director of public works of Stockholm, and in 1913 he was made a knight of the Royal Order of Vasa by the King of Sweden.

ERIE CANAL, Anniversary of. See Celebrations.

ERITRE′A. An Italian colony in Africa. It lies on the coast of the Red Sea, extending from Cape Dumeirah and the Strait of Bab-el-Mandeb to Cape Kasar, a distance of 670 miles. Area, 45,754 square miles; population, at the census of 1921, 402,793 natives and 4251 Europeans. The seat of government is Asmara, situated 7765 feet above sea level, with a population of 14,711, of whom 2500 are Europeans, Massawah is the principal trade centre, with a population of 2275 in 1923. The natives are chiefly Coptic Christians and Mohammedans and they speak a dialect of Abyssinian in the plateau region and Arabic in the lowlands. The local trade is almost entirely confined to camels, oxen, sheep, goats, and their products.

Although there is an abundant area of pastoral land the pastoral population is largely nomadic. There is considerable trade in palm nuts, and pearl fishing is pursued at Massawah and in the Dahlak Archipelago. For the fiscal year 1925–26, the revenue and expenditure of the colony were estimated at: Colonial revenue, 36,430,000 lire; expenditure for colonial administration, 24,674,000 lire and for military purposes, 11,765,000 lire. Governor at the beginning of 1927, Dr. Jacopo Gasparini (appointed in 1923).

ERIVAN. See Armenia.

ER′YSIP′ELAS. Bellevue Hospital, New York City, had in 1927 the largest and most active erysipelas service in the world and during the previous 23 years 15,277 cases had been treated there with a mortality of a little over 10 per cent. During this period every form of treatment was tested but without bringing down the mortality or shortening the average duration of the affection. In 1926 (see Year Book for that year) Birkhaug reported the first test of a special anti-toxin which showed a decided improvement over other methods, and since that period the same preparation has received a full test at Bellevue, 131 patients having been submitted to it with a mortality of only 5.3 per cent, which contrasts strongly with the 11.2 per cent in a series of 107 cases which preceded the anti-toxin period. Moreover, the average duration of the disease and period of disability were shortened in a most gratifying manner, the latter by a little more than one half, which was a decided economic gain owing to the fact that these patients are mostly workers. Most of the patients suffer from facial erysipelas, and here the mortality went as low as 4.5 per cent. Erysipelas of the body is naturally far more deadly, at times with as high as 40 per cent mortality; but under the anti-toxin it came down to about 10 per cent. The greater the proportion of old, debilitated and debauched patients the higher the mortality.

ESCHWEGEITE. See Mineralogy.

ESSAYS. See Literature, English and American; French Literature; German Literature; etc.

ESTONIA. A Baltic state comprising the following portions of the former Russian Empire: The province of Estonia, the islands of Moon Sound, the northern part of Livonia, part of the northwestern part of the district of the Pskov government, and a small portion of the Petrograd government; declared independent Feb. 24, 1918, and recognized by the Council of the League of Nations, Jan. 26, 1921. Capital, Tallinn (Reval).

Area and Population. The total area is about 18,354 square miles; population, at the census of 1922, 1,110,538, of whom 92 per cent were Estonians, 1.5 per cent Germans, and 6.5 per cent Russians and other nationalities. Five-sixths of the population are Lutherans, and the rest Greek Orthodox, Roman Catholic, etc. The population on Jan. 1, 1926, was estimated at 1,115,000. Tallinn or Reval, the capital, had a population of 127,000 in 1926. Dorpat (Tartu), the seat of the university of the same name, had about 59,000 inhabitants. Other large towns are: Narva, a manufacturing town, with about 27,000, and Parnu, with about 27,000.

Education. Primary instruction is free and compulsory. In 1924–25 there were 1392 elementary schools; of this number 1337 were supported by local authorities and 55 were private schools. The number of middle schools for general education, gymnasiums, etc., was 86, of which 27 were private schools. For special or professional education there are five teachers' seminaries, four navigation schools, commercial schools, mercantile schools, and industrial and art schools. For higher education there is the University of Dorpat (founded in 1632) which had 4497 students in 1925, and the Technical Institute at Reval, with 380 students in 1924.

Production. The chief occupation is agriculture. The total area of about 10,851,048 acres is divided as follows: Forest land, 2,220,002 acres; fields, 2,532,799 acres; meadows, 2,602,274 acres; pastures, 1,836,302 acres; untillable land, 1,632,206 acres (including a peat bog of 496,112 acres). The acreage and yield of the principal crops in 1925 was as follows: Rye, 382,489 acres, 185,531 tons; wheat, 50,730 acres, 21,880 tons; barley, 283,720 acres, 117,032 tons; potatoes, 170,304 acres, 660,272 tons; and oats, 371,399 acres, 128,670 tons. The livestock census of 1926 showed 599,104 head of cattle, 665,971 sheep; 333,144 pigs, 226,359 horses, 797,624 head of poultry. In 1925 Estonia had 3738 industrial establishments with 35,579 workmen.

Commerce. In 1926 imports were valued at 9,556,975,000 marks and exports at 9,637,573,000. The principal imports in 1926 were: Grain and flour, 1,938,080,000 marks; cotton, flax and other textile materials, 1,107,612,000; foodstuffs, 1,106,377,000; textile products, 930,255,000; machinery, 731,279,000; principal exports, dairy produce, 2,778,968,000; timber, 1,832,765,000; textile products, 1,433,256,000.

Finance. The budget for 1927–28, passed by Parliament on January 8, was balanced at 8,923,300,000 Estonian marks, an amount higher by nearly 75,000,000 marks than the budget for 1926–27. A meeting of the Inter-Ministerial Committee, held early in February, decided to call the Estonian monetary unit the "est" which will be equal in value to the gold crown (same as the Scandanavian gold crown, $0.268). One est will contain 100 sayak. No gold money will be minted, although the monetary system will be organized on a gold standard basis. The foreign debt of Estonia on Nov. 1, 1926, consisted of $13,830,000 to the United States, £1,120,670 to Great Britain, and 1,300,000 crowns to Sweden, which have all been funded by special agreements.

Communications. The railways in Estonia are owned and operated by the state and at the close of 1925 comprised 674 kilometers of main standard-gauge line and 515 kilometers of narrow-gauge line. Operating revenues during 1925 amounted to 1,205,338,000 marks, as compared with 1,096,040,000 marks in 1924; operating expenses amounted to 1,133,564,000 marks in 1925. Rolling stock in operation consisted of 203 locomotives, 5102 freight cars and 441 passenger cars. Construction during 1925 covered 12.3 kilometers of standard-gauge line and 25 kilometers of narrow-gauge. During 1925, 2566 vessels of 768,094 tons entered and 2545 vessels of 774,064 tons cleared from the ports of Estonia.

Government. According to the constitution of the Estonian republic, passed by the Constituent Assembly on June 15, 1920, and put into force December 20 of the same year, executive power is in the hands of a state head or "State Elder" and a ministry, both chosen by and responsible to the State Assembly; legislative power, in the hands of the State Assembly of 100 members elected for three years on the basis of proportional representation and by direct, universal, and secret suffrage. The Assembly forms the government and accepts its resignation, promulgates the laws, passes the budget, decides the financial policy generally, ratifies treaties, etc. The principle of the referendum is recognized for the proposal or amendment of the laws, but not in relation to measures affecting the budget, or war, peace, or foreign affairs. State Elder in 1927, Jaan Teemant (Agrarian).

History. Early in the spring a new cabinet was constructed by Jaan Teemant. It was composed as follows: Premier, Jaan Teemant; Foreign Affairs, Dr. Akel; Interior, M. Huenerson; War, Gen. Reck; Finance, M. Sepp; Justice, M. Tief; Agriculture, M. Koester; Public Instruction, M. Lattik; Communications, M. Kerem; Commerce, M. Kornel; Social Welfare, Dr. Masing. The assembly ratified this cabinet, which was the same as the old one with the exception of Messrs. Huenerson, Masing and Reck. The relations with Soviet Russia during the year were more or less friendly, an attempt being made to arrange a non-aggression pact between the two countries. In a sensational trial in November, M. Birk, former Estonian Minister to Moscow, was acquitted of a charge of treason, after he told a weird story of being kidnapped by the Russian secret police and forced to sign articles attacking Estonia, which appeared in a Russian newspaper. He claimed he never even saw the articles he signed.

ETHIOPIA (formerly **ABYSSINIA**). A country in West Africa between the Anglo-Egyptian Sudan and the Red Sea comprising the provinces of Harar, Equatorial Provinces, Gondar, Jimma, Wollo, Shoa, Sellale, Edjow, Wollaga, Guimira, Gojan, etc. The area has been variously estimated at from 350,000 to 430,000 square miles. The former figure is probably the more accurate. The most recent estimate of the population places it at about 10,000,000, although the Abyssinians, properly so called, number less than 3,500,000. They are Christians of Hamitic origin. The capital is Addis Abeba, with a population of from 60,000 to 70,000, of whom about 1000 are foreigners. The other chief city, Harar, has a population of about 40,000. Domestic slavery is a recognized institution, but slave trading, by an ancient law renewed by a decree issued in June, 1923, is punishable by death. In March, 1924, an edict was issued by Ras Taffari, providing for the gradual emancipation of slaves, beginning with the children born of slaves.

The backward methods of agriculture and the lack of adequate means of transportation have continued to retard economic development. The chief pursuits are agriculture and stock raising. The system of land holding is feudal and the soil theoretically belongs to the Negus or Emperor. The products include cotton, sugar cane, the date palm, coffee, and grapes, but, with the exception of coffee, they are nowhere extensively raised. The production of the so-called Harari coffee is increasing from year to year. There is a wild coffee plant which is found especially in southern and western Abyssina bearing a berry known as Abyssinian coffee, of which the supply is said to be unlimited. Among the other native products are hides and skins, millet, wheat, barley, and tobacco, and there are valuable forests including rubber. In some districts iron is found and is used in the manufacture of native weapons. In the western districts the mining of gold has been carried on, and coal, copper, and sulphur are also found.

No reliable figures for exports and imports are available, but, according to a British authority, they reach £2,500,000 annually. The chief exports are hides and skins, coffee, wax, ivory, civet, and native butter; and the chief imports, cotton shirting, cotton goods, liquors, railway materials, provisions, sugars, and petroleum. The principal line of trade is along the French-Ethiopian railway but there is a considerable caravan trade in the interior. The imports came mainly from the United States, Great Britain, France, India, Italy, and Japan. Trade with Great Britain in 1926 was: Imports from Abyssinia, £105,642; exports to Abyssinia, £16,368.

The French-Ethiopian railway connects Djibuti in French Somaliland with Addis Abeba, a distance of about 495 miles. The line is of meter gauge. Trains run twice weekly, covering the distance in three days. The carrying of freight is consequently a monopoly and foreign goods suffer from extremely high rates. There are about 2000 miles of telegraph line and a few miles of telephone connection. In 1927 the Empress was Waizeru Zauditu, daughter of the late Menelik. She was named Empress after the deposition of Lij Yasu in 1916; but the actual authority rests in Ras Taffari, great-nephew of Menelik, who has been proclaimed heir to the throne and who acts as Regent. In August, 1919, a modified form of cabinet government was introduced, but its powers are rather shadowy. Ethiopia is a member of the League of Nations.

History. In the London *Times* of June 2, it was stated that the American Department of Commerce had issued an appeal to American capital to enter Abyssinia (Ethiopia), "an almost virgin field for productive effort," a fact which should be considered in connection with the repeated attempts of Ras Taffari, the Regent of Ethiopia, to persuade President Coolidge to appoint an American Minister at Addis Abeba.

In a statement to the press the Regent suggested that American capitalists should employ the slaves who still constitute a large part of the population for development of coffee, rubber, and copper, paying the slave owner a yearly sum for five years as a rental for this human property, after which the slaves should be "free"—although the nature and degree of this freedom were not defined.

The Regent's promise to the League of Nations in 1923 to abolish slavery and forced labor had not been carried out, and, according to the *Times*, the proposal that American capital should help to destroy this system by condoning it for five years would not find favor in Great Britain. The advantage which the Regent would seek to derive in his dealings with Great Britain, France and Italy from the presence of an American diplomatic representative and the creation of American commercial interests in Abyssinia, however, was not difficult to imagine.

ETHNOGRAPHY. See Anthropology.

ETHNOLOGY. See Anthropology.

ETHYLENE. See Chemistry, Industrial. For hastening fruit ripening, see Horticulture: Botany.

EUCLID. See City Planning.

EUPEN AND MALMEDY. See Belgium, under *History*.

EUROPEAN CORN BORER. See Corn; Entomology, Economic.

EVANGELICAL CHURCH. A denomination formed by the union of the Evangelical Association and the United Evangelical Church. The former was the outgrowth of a religious movement started in Pennsylvania in 1800 by the followers of Jacob Albright. In 1892 a number of ministers and members organized themselves into the separate denomination known as the United Evangelical Church. At length the growing conviction that the two churches should be reunited led to the appointment of commissions, which drew up the so-called Enabling Act. The new organization was officially established at Detroit, in 1922. At the time of merging, the Evangelical Association had 167,416 church members and the United Evangelical Church 92,001. At the end of 1927, there was a total membership of 254,839. There were 1942 itinerant preachers and 475 local preachers. Of 26,569 received into church membership during the year, 15,592 came on profession of faith. Sunday schools numbered 2898, of which 710 were in the foreign mission fields in China, Japan, Germany, and Switzerland. Of the total enrollment of 372,943, China had 4070; Japan, 3717; Europe, 42,774. The total amount raised by the Sunday schools was $480,262.13. The Christian Endeavor Society membership was 71,830. There were 1426 Woman's Missionary Societies in the denomination, with a membership of 42,531. The total value of all property was $36,435,879. The money raised during the year totaled $7,027,475.98, an average of $27.57 per member. The chief schools of the denomination were: North Central College and Evangelical School of Theology, Naperville, Ill.; Western Union College, Le Mars, Iowa; Albright College, Myerstown, Pa.; Schuylkill College and School of Theology, Reading, Pa. Two orphanages and six Old People's Homes were maintained in the United States, as well as several hospitals. The church had 24 conferences in the United States, two in Canada, one in Japan, two in Germany, one in Switzerland. There were two publishing houses, one in Cleveland, Ohio, and the other in Harrisburg, Pa. The Church issues two official papers, the *Evangelical Messenger*, in English, and *Christliche Botschafter*, in German. It was planned to hold the next general conference in Milwaukee, in October, 1930.

EVANGELICAL SYNOD OF NORTH AMERICA, The. A religious communion, strictly evangelical in principle as historically crystallized from the Reformation of the sixteenth century and as embodied in the Reformed and Lutheran doctrinal statements, accepting these statements as far as they agree. Where they disagree, however, the Evanglical Synod adheres strictly to the passages of Holy Scripture bearing on the subject and avails itself of the liberty of conscience prevailing in the Evangelical Church. The communion was organized in 1840 at Gravois Settlement, Missouri, and consolidated in 1877 with similar communions. The church is organized in 19 districts with extensive power of self-government. Presidents of districts, clerical delegates and lay delegates meet in General Conference every fourth year. A quadrennial Conference was held in 1925 and an Extraordinary General Conference adopting a new constitution, in 1927. In 1926 the organization included 1118 pastors, 1332 congregations with 336,118 communicant members, and 1250 Sunday schools with 188,590 members. Money raised by the denomination for all purposes in 1926 amounted to $5,870,367. Church property was valued at $40,674,172. Missionary work was carried on in the United States, India and Honduras. In the United States there were over 100 missionaries, men and women, active in about 135 communities. The Board of Foreign Missions reported an income of over $161,361.20 for 1926, and had 14 men, one of them a medical worker, and 17 women as missionaries in India, in addition to 333 native workers. In Honduras there were 11 missionaries at two stations. The denomination maintains four institutions of learning: Eden Theological Seminary, St. Louis, Mo.; Elmhurst College, Elmhurst, Ill.; Robinson Academy, Waco, Tex.; and Oakwood Institute, Cincinnati, Ohio. The chief periodicals published are *Der Friedensbote, The Evangelical Herald* and *The Light Bearer.*

EVOLUTION. See Anthropology under *Physical Anthropology;* also Education, under *Anti-Evolution Legislation.*

EXCAVATIONS. See Archæology.

EXCHANGE, Foreign. See Financial Review.

EXCHANGE FELLOWSHIPS. See Internationalism.

EXHIBITIONS, Art. See Art Exhibitions.

EXPERIMENTAL PSYCHOLOGY. See Psychology.

EXPERIMENT STATIONS. See Agricultural Experiment Stations.

EXPLORATIONS. Along strictly geographical lines there did not appear to have been any important search for unknown regions, beyond those mentioned in Polar Research (q.v.). Aviation flights and cursory views—with the insatiable demands for "records"—had changed methods of exploration as well as many other pursuits.

Search for the unknown during 1927 was confined almost wholly to the domains of Arch-

Æology (q.v.) and biology—to ascertain the life conditions of prehistoric ages, and to discover how life itself continues in its myriad forms.

Of especial interest archæologically were the results obtained by C. L. Woolley, director of the Chaldean explorations which, for some years, had been pursued by joint action of the British Museum and the University of Pennsylvania. The recent excavations of 180 graves at Ur, south of Baghdad in the valley of the Euphrates, revealed secrets of life in the fourth millennium before Christ.

Most remarkable were evidences of burial rites, as practiced in Mesopotamia more than 5000 years ago. In one great burial pit, a score of skeletons and the surrounding magnificent paraphernalia, such as a chariot for transportation, a harp for music, and household articles of gold and silver, etc., indicate that the death of a king had been followed by fitting provisions for his comfortable royal journey into another realm. He was to be accompanied by his slaves and harem, who carried along their elaborate ornaments and vanity cases. Evidently when a king died, so did his intimates.

In the near Orient, Dougherty, for Yale University, unraveled the mystery of Babylonian craft-methods, which were so notably efficient in architecture, irrigation, navigation and soil culture.

The Liverpool University party excavated at Armant, near Luxor, a large sandstone sarcophagus, possibly of religious importance.

In Greece search for relics of ancient ages progressed. Biegen, for the University of Cincinnati, unearthed at Nemea in the temple of Zeus a prehistoric crypt. Continuing its researches at Asine, the Swedish Archæological Society obtained as many pre-Mycenæan and Pelasgic objects as filled 300 cases.

Denmark continued its researches in Greenland (q.v.).

The Mexican Department of Archæology was studying its pre-historic remains. In so doing it had discovered in an Aztec pyramid a stone sepulchre. Its treasures are guarded by 95 carved snakes. These and other sacred relics illustrate Aztec life and religious rites.

Besides its Arctic expeditions Soviet Russia was active in researches to develop its resources and correct its maps. Economically important was the discovery by Chtscherbakov of large deposits of sulphur in the Karakoram region. The palæontological investigations of the Leningrad Academy of Sciences indicate great changes in the fauna and climate of the Crimea, in past ages. France confines its work to its colonies, Syria, Madagascar and Indo-China.

American Explorations. As usual the educational institutions of the United States were active in research, having sent more than 70 expeditions into foreign fields. In this work especial efforts were made by the Smithsonian Institution, the American Museum of Natural History, the Field Museum, and the Carnegie Institution. Space permits reference to results only when they are specially striking. Apart from those at Ur, already mentioned, attention is drawn to the researches of the Carnegie Institution in Central America. These resulted in the most remarkable archæological discoveries in the western world.

The Temple of Warriors at Chichen Itza, Yucatan, the sanctuary of the patron deity, Kukulcan, was restored. This exquisitively beautiful specimen of Mayan architecture rests on a base 37 feet high, and 137 square. The Temple rises in four retreating terraces, carrying richly sculptured friezes of warriors, birds and animals. The colors used in ornamentation are of striking brilliancy. It is hoped that the work at Uaxacton and Morella, Guatemala, and Etzna, Yucatan, may be equally fruitful.

The following lists carry only the names of the leaders, kind of research and of regions:

California. *Academy of Sciences:* Haley, biology, Nunivak, Alaska.

Connecticut. *Yale University:* Dougherty, archæology, Babylonia; Whitney, mammals, Alaska.

District of Columbia. *Carnegie Institution:* Amsden, archæology, Guatemala; Morley, archæology, Yucatan, also Chichen Itza. *National Geographical Society:* Judd, archæology, Pueblo Bonito (in coöperation with Smithsonian Institution); Rock, ethnology, Hsiang Cheng, China; solar radiation, Africa (in coöperation with Smithsonian Institution). *U. S. Department of Agriculture:* Dorsey, botany, China; Kephart, grasses, British East Africa; McKinney, plant pathology, West Africa.

U. S. National Museum: Bassler, palæontology, France and Germany; Collins and Stewart, anthropology, Nunivak; Foshag, mineralogy, Mexico (with Harvard University); Hrdlicka, anthropology, Alaska; Judd, archæology, New Mexico; Killip, birds, botany, Colombia; Schmitt, crustaceans, South America; Krieger, ethnology, Yukon; Smith, zoölogy, Siam; Stirling, anthropology, Dutch New Guinea; Wetmore, fauna and flora, Haiti.

Illinois. *Field Museum:* Borden, zoölogy, Alaska; Conover, zoölogy, Tanganyika; Faunthorpe, zoölogy, India; Langdon, archæology, Mesopotamia; Linton, anthropology, Madagascar; MacMillan, general, Labrador; Osborn, zoology, Abyssinia. *Daily News:* Field, prehistoric culture, Asia and Europe; Riggs, fossils, Argentina; Sanborn, zoölogy, Brazil; Tansill, zoölogy, Kodiak; White, zoölogy, Abyssinia; Weberbauer, botany, South America. *University of Chicago:* Breasted, archæology, Egypt; Chamberlain, geology, Canada; Taylor, ethnology, Finland.

Maryland. *Johns Hopkins:* Berry, botany, South America.

Massachusetts. *Harvard University:* Putnam and Wulsin (Peabody Museum), archæology, French Sudan; Strong, biology, medical survey, Liberia; Winn and Blake, archæology, Mt. Sinai; Foshag, minerals, Mexico.

Michigan. *University of Michigan:* Bartlett, botany, East Africa; Little, biology, Faroes; Hobbs, meteorology, Greenland; Kelsey, archæology, Karanis, Lybian Desert.

New York. *American Museum of Natural History:* Anthony and Taylor, birds and mammals, Blue and White Nile; Beck, birds, South Seas; Chapin, Sage and Mathews, birds, South Africa; Chapman and Evans, birds, Canal Zone; Goodwin, mammals, South Quebec; Griscom and Crosby, birds, Panama; Hay, anthropology, Mexico; Heilner, zoölogy, Alaska; Granger and Nelson, fossils, South China; Pratt, educational films, Europe; Morden and Clark, fauna, Chinese Turkestan; Putnam, mammals, Baffin Land; Schmidt, archæology (in coöperation with University of Chicago); Tate and Carter, birds and mammals, Roraima, Venezuela; Valliant, archæology, North Africa; Vernet, museum specimens, India.

Ohio. *University of Cincinnati:* Wherry, medical survey, Mexico; with American School of Classics, archæology, Nemea, Greece.

Pennsylvania. *University of Pennsylvania:* Beisan, archæology, Mesopotamia; Harshberger, botany, Argentina and Chili; Woolley, archæology, Ur (in coöperation with the British Museum).

Wisconsin. *Beloit College:* Collie, anthropology, North Africa.

Canada. Mackenzie cruised in the *Beothic* to the police station on Bache Peninsula, 76°04′ N.; heavy ice debarred him from Melville Island. On Baffin Island, Dr. Livingston sledged 2500 miles and cared professionally for every sick Eskimo, while Weeks, traveling 2300 miles, examined geologically Cumberland Gulf and other regions.

Mexico. The discovery by the Mexican Department of Archæology of an Aztec pyramid has been referred to above.

European Expeditions. *Denmark.* Koch, fossils, Greenland (q.v.); Jorgesen, surveys, Greenland (q.v.); Nielsen, topography, Iceland: Olufsen, ethnology, Senegal. *England:* British Museum: archæology. Ur (in coöperation with University of Pennsylvania); Liverpool University: Mond and Emery, archæology, near Luxor. *France:* Société de Géographie: Poidetard and Dunmard, archæology, Syria; Société de Géographie: Dumbrava, glaciology, Greenland (coöperating with Belgian Société de Géographie): Decary, ethnology, Madagascar; Dewar and Howman, political, Indo-China. *Germany:* Schultz, fisheries, Barents Sea; *Italy:* Naples excavating Herculaneum. *Russia:* Academy of Sciences, palæontology, Crimea; Geographical Society, ethnology, Kola Peninsula (See Polar Research); Chtscherbakov, geology, Karakoram; Mikhailevski, biology, Caspian Sea; Obrougchev, geography, Siberia (See Polar Research). *Sweden:* Floderus, plants, Kola Peninsula.

Argentina. An expedition coöperating with the British Museum investigated the fauna and flora of the unexplored forests in northwest Patagonia.

Australia. Cleveland and Campel made researches on aborigines in the interior, under the auspices of the Rockefeller Foundation.

EXPOSITIONS. No general international exposition was held during the year 1927.

Sesqui-Centennial Exposition at Philadelphia. The gate receipts of this exposition failed to realize expectations and consequently on April 23, in order to protect the claims of all creditors and to prevent claimants who had started suits from becoming preferred creditors, the United States District Court in Philadelphia appointed former State Attorney-General F. S. Brown and Director-General Austin receivers to hold the assets intact until a plan could be worked out for the liquidation of the Sesquicentennial property and the distribution of proceeds among creditors. A report issued in June showed that the income of the exposition, including the $5,000,000 deficit appropriation, totaled $18,216,139 and its expenditures $18,428,126. It established the City of Philadelphia's appropriations for the fair at $2,060,000, which did not include more than $4,000,000 spent by the City Council in developing the South Philadelphia site of the exposition and $3,000,000 spent on the Sesqui stadium. Visitors to the fair paid $2,403,991 in admission fees and spent $693,212 with concessionaries, while exhibitors paid a total of $1,406,890 in rental fees for exhibit space. The liabilities statement listed operating debts, which the City Council refused to pay when the deficit was acted upon, at $648,613 and so-called "development bills," to be paid from a $5,000,000 loan by the Council, at $4,859,228. The association also had facing it claims of $5298 for "accrued payroll" obligations and $4563 in purchase commitments.

Future Expositions. The Seville Exposition, known officially as the Ibero-American International Exposition of Art, Commerce, and Industry, was announced to open in Seville, Spain, on Oct. 12, 1928, and to continue until June 30, 1929. It was originally named the Hispano-American Exposition, but in 1922 the name was changed so as to include Portugal and Brazil. The exhibits were to be confined to those from the countries in the Iberian peninsula and those American nations discovered or settled by Spanish or Portuguese navigators and explorers. The site included 2400 acres on the outskirts of Seville, one entrance being three-fourths of a mile from the centre of the city and the other three miles distant. The buildings, which were to be permanent, were to be elaborately decorated in color and in the best style of Spanish and Moorish architecture. The grounds were to be laid out in an attractive manner with a setting of floral beauty not hitherto attained by any exposition. The principal structure was the "Plaza de España" built in a half circle with a central court 600 feet across, and with 49 divisions in each of which were to be exhibits of the 49 provinces of Spain. Other large buildings were those devoted to Fine Arts, Ancient Arts, and a Royal Pavilion. Also there were special buildings erected by Argentina, Mexico, Peru, Portugal, and the United States. The United States Congress appropriated $700,000 for participation in the exposition and a permanent pavilion designed by American architects was erected. The Commission consisted of former Gov. Thomas E. Campbell of Arizona, commissioner-general, and Miss Agnes Repplier of Philadelphia, Pa.; Mrs. Fred W. Upham of Chicago, Ill.; John F. O'Brien, former Secretary of State of New York; Judge Roderick N. Matson of Cheyenne, Wyo.; and George T. Cameron of San Francisco, California.

No further information concerning a World's Fair to be held in New York in 1932 was published. In August the *Chicago Tribune* announced that the administration of Mayor Thompson had decided to abandon the plan for a world's fair and centennial exposition in 1933. In September, however, this question was reconsidered by Mayor Thompson.

Belgium was making active preparations for an exposition in 1935 to mark the centenary of the gaining of independence by that country. At the same time there was to be celebrated the 100th anniversary of the laying of the first railroad line in Belgium and in Europe, and also the jubilee of the foundation of the Congo Free State. The exposition was to be held in Brussels, and Belgium was already preparing for it. The City of Brussels voted 25,000,000 francs as a beginning. Invitations to participate were being extended to other countries. Antwerp was laying plans for an international colonial and naval exhibition to be held in 1930.

Trade Fairs. The usual spring fair was held in Lyons, France, during March 7–20. It corresponded favorably with previous similar fairs and some 3000 manufacturers representing 20 foreign countries were reported to have had exhibits.

The annual spring Leipzig fair was held during March 6–12 and was attended by 150,000 visitors including 20,000 foreigners, of whom not more than 1500 were Americans. There were 9300 exhibitors, mostly from Germany, while, from abroad, Austria and Czechoslovakia provided the largest numbers. An important feature of the exhibits was the evidence presented of the development of the German machine tool industry, particularly with regard to series and mass production machinery. Decided progress was noted in this class of equipment, with resulting increased capacity to compete against American machinery. Another important development was seen in the many new applications of small-sized full Diesel engines, as for road rollers, concrete mixers, and other industrial machinery. One of the foremost features was the Russian exhibit, which was mainly confined to raw as well as half-manufactured materials. Business was brisk, with quick bargains, and, in the opinion of many American buyers, the best since the inflation period.

The fall fair, held at the beginning of September, was not a failure although somewhat disappointing. Sales of toys were especially dull, but some activity was noted in construction machinery, novelties, tools, specialties, and office equipment. Business in all technical and engineering lines was slack, mainly as a result of the absence of prominent exhibitors. Two of the leaders in the German porcelain industry were able to book substantial orders for the fall and Christmas trade. New lines of porcelain tableware brought out were favorably received. The fair was marked by cautious buying by domestic customers and by the practical absence of foreign buyers with the exception of some from France, Poland, and other European countries.

During Oct. 3–18, 1926, a first international fair was held in Saloniki, Greece. Within an area of 5000 square meters covered by the exhibition, six large pavilions were occupied by Greek industrial and agricultural products and two by foreign exhibits. Bulgaria and Soviet Russia were the only foreign nations to take complete pavilions. In addition to those there were 19 small private pavilions constructed by local concerns, 14 of which contained entirely Greek exhibits, one Greek and French, one Greek and Swedish, one Swiss, one American, and one Hungarian. The machinery was all exhibited in two long open stands. The total number of commercial, industrial, and agricultural organizations represented in the fair was 580, exclusive of the 42 Russian State units. The visitors numbered 110,000 and the business transacted by exhibitors exceeded $63,000. The financial and commercial success of this fair was so great, especially as providing a new method of contact between foreign manufacturers and the buying public of the Levant, that a second similar fair was held during Sept. 18–Oct. 3, 1927.

The world-famous Nijni Novgorod Fair, which opened on August 1, during its first weeks promised to prove the most brilliant since the inception of the "New Economic Policy" in 1921, but later a sharp decline in transactions destroyed such hopes. The figures up to and including September 7 (the air closed on September 14) showed a total turnover of 101,785,000 rubles against 107,078,000 in the previous year. The number of foreign contracts signed fell from 3660 to 3014. The Soviet coöperative societies traded more than ever before, the customers' coöperatives alone buying to the extent of 45,000,000 rubles. Fur contracts were satisfactory, especially those with Germany, an order having been given to deflect as far as possible the fair's fur deals to Leipzig and New York. The decline in the fair's total turnover was attributed chiefly to the smaller attendance of Asiatic merchants, chiefly the Persians. In order to counteract a Persian boycott of Russian goods. Moscow conceded the most liberal conditions to Persia's trade with Russia and, moreover, fixed a special quota of 8,000,000 rubles for Persian imports to the Fair.

EXTENSION WORK IN AGRICULTURE. See Agricultural Extension Work.

EXTRADITION. See International Law.

FAILURES. See Business Review.

FAIRCHILD, Samuel W. American manufacturing chemist, died at New York City, November 13. He was born at Stratford, Conn., Aug. 22, 1852, and was educated at the Stratford Academy and private schools, graduating from the Philadelphia College of Pharmacy in 1873. With his brother, Benjamin Fairchild, in 1879 he founded the chemical firm of Fairchild Brothers, which two years later was combined with the house of Macomb G. Foster, becoming the firm of Fairchild Brothers & Foster, well known for their pharmaceutical preparations. Mr. Fairchild was active in many fields, and was president of the New York College of Pharmacy from 1890 to 1896, during which period the work of the institution was extended and developed. In 1904 he founded the Fairchild scholarship for pharmacy students in Great Britain and Ireland, and in 1915 the scholarship for students in the United States. In 1911 he received an honorary degree from Columbia University for his work in developing drugs and chemicals, having previously received the degree of Pharm.M. from the Philadelphia College of Pharmacy. He was the first chairman of the drug trade section of the Board of Trade and Transportation of New York, vice president of the Chamber of Commerce of New York, and incorporator of the Botanical Gardens, vice president of the Sevilla Home for Children, trustee of the Polyclinic Medical School and Hospital, and for several years president of the Union League Club of New York City. For his work during the War he was made a Chevalier of the Legion of Honor of France, and received the Cross of an Officer of the Order of Leopold II of Belgium, in addition to a decoration from Queen Elizabeth or services in organizing the Belgian relief. For his work in Greece he was awarded the Golden Cross of a Chevalier of the Royal Battalion of George I. He received many honors in the city of New York, being prominently identified with social and philanthropic organizations and movements.

FAIR OF THE IRON HORSE. See Baltimore and Ohio R. R. Centenary.

FAIRS. See Expositions.

FALKLAND ISLANDS. A colony of the British crown, situated in the south Atlantic, 300 miles east of Magellan's Strait, consisting of: East Falkland, 2580 square miles; West Falkland, 2038 square miles; including in each case various adjacent small islands, about 100 in number. In addition to these are South Georgia with an estimated area of 1000 square miles, and other dependencies including the South Shetlands, the South Orkneys, the Sandwich group, and Graham's Land, together with all unknown seas and lands of the Antarctic Ocean extending as far as the South Pole. The estimated population in 1925 was 2252. In 1925 the birth rate was 17.76 per thousand and the death rate, 10.06. The chief town is Stanley, with 890 inhabitants in 1921. Education is compulsory. Sheep raising is the chief industry, although whaling is carried on with some success. In 1925 the imports were valued at £533,846 and the exports at £3,915,375. The chief imports were groceries, coal and coke, hardware and machinery; the chief exports, wool and whale produce. The revenue in 1925 was £220,881 and the expenditure, £126,928. Governor in 1927, Arnold W. Hodson.

FAMILY ENDOWMENTS. See Child Welfare.

FAR EASTERN REPUBLIC. An independent state formed after the World War out of the former Russian provinces of Transbaikal, Amur, the Maritime Provinces, and the northern part of the island of Sakhalin. After Nov. 10, 1922, the Far Eastern Republic became a constituent part of the Russian Socialist Federal Soviet Republic, and is now known officially as the Far Eastern region. Area, 652,740 square miles; population, about 2,000,000. Chita is the seat of the government.

FARM ACTIVITIES. See Agriculture; Agricultural Extension Work; Agricultural Legislature; etc.

FARM BUREAUS, Farm Demonstrations, etc. See Agricultural Extension Work.

FARMERS' INSTITUTES. See Agricultural Extension Work.

FARM LABORERS. See Child Labor.

FEDERAL-AID ROADS. See Roads and Pavements.

FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA. An organization established in 1908 by 28 Protestant denominations, to act for them in matters of common interest. At the end of 1927 it included most of the Protestant denominations of the United States, as follows: Baptist Churches, North; National Baptist Convention; Free Baptist Churches; Christian Church; Churches of God in North America (General Eldership); Congregational Churches; Disciples of Christ; Evangelical Church; Evangelical Synod of North America; Friends; Methodist Episcopal Church; Methodist Episcopal Church, South; African Methodist Episcopal Church; African Methodist Episcopal Zion Church; Colored Methodist Episcopal Church in America; Methodist Protestant Church; Moravian Church; Presbyterian Church in the United States of America; Presbyterian Church in the United States (South); Primitive Methodist Church; National Council of the Protestant Episcopal Church; Reformed Church in America; Reformed Church in the United States; Reformed Episcopal Church; Seventh-Day Baptist Churches; United Brethren Church; United Presbyterian Church; United Lutheran Church (Consultative Body). Of these, all were full and official members with the exception of the United Lutheran Church, whose relationship was consultative, and the Protestant Episcopal Church, whose National Council cooperates in certain specified areas of work. The total number of local churches included in the constituency of the Federal Council was 147,252; number of clergymen, 116,044; total communicant membership, 22,455,594.

The Council, made up of members designated by the several denominations to act for them, meets quadrennially, the last meeting having been held at Atlanta, Dec. 3–9, 1924. It has an executive committee of about 100, meeting annually. An administrative committee, including one official representative from each of the denominations, meets monthly in New York. This committee includes representatives of other coöperative agencies carrying on specialized work for the churches, among them being the Home Missions Council; the Council of Women for Home Missions; the Council of the Church Boards of Education; the American Bible Society; the Student Volunteer Movement for Foreign Missions; and the International Council of Religious Education. The Council also serves as a connecting link between the church and great social agencies, such as the American Red Cross, the Child Welfare Movement, and the U. S. Bureau of Public Health.

Special tasks of the Council are carried on by a group of commissions. The Commission on Evangelism develops a united approach to the evangelistic work of the churches. The Commission on the Church and Social Service is the centre through which the churches deal unitedly with social issues. It gives particular attention to the developing of better relations in industry through conferences. The Department of Research and Education issues a weekly information service discussing contemporary social questions from the standpoint of Christianity and makes special studies from time to time, its outstanding studies in 1927 being a *Report on the Oil and Land Controversy between the United States and Mexico,* and *Social Aspects of Agricultural Credit.* The Commission on Church and Race Relations furthers efforts of churches in promoting coöperation and good will between the white and negro races in the United States. The Commission on International Justice and Good Will endeavors to mobilize the Christian forces to abolish war by building up effective international agencies for coöperation. During 1927 attention was given to supporting the proposal for renouncing war as an instrument of national policy. Other Commissions of the Council deal with the following subjects: Christian Education; Relations with Religious Bodies in Europe; Religious Work in the Canal Zone; Army and Navy Chaplains; Relations with the Eastern Churches.

One of the significant developments of 1927 was the initiation of the Church and Drama Association, organized for developing the coöperation of all religious forces in support of the worthiest productions on stage and screen.

The programme of the Council is carried on with funds contributed in part by individuals interested in the work and in part by appropriations from the various denominations. The official organ of the Council is the *Federal Coun-*

cil Bulletin, issued monthly and furnishing general religious news. The officers, 1924–28, were: President, Rev. S. Parkes Cadman of Brooklyn, N. Y.; Chairman of Executive Committee, Bishop John M. Moore of Dallas; Chairman of Washington Committee, Bishop William F. McDowell; Chairman of Western Committee, Dean Shailer Mathews. National offices are at 105 East 22d Street, New York. There is a Washington office in the Woodward Building, and a Western office at 77 West Washington Street, Chicago. General Secretaries at the national offices are Rev. Charles S. Macfarland, Rev. John M. Moore, and Rev. Samuel McCrea Cavert.

FEDERAL RESERVE BANKS. See BANKS AND BANKING; FINANCIAL REVIEW.

FEDERAL TERRITORY. A territory of the Commonwealth of Australia, lying within the state of New South Wales. Area, 940 square miles; population according to the census of 1921, 2572; estimated June 30, 1926, 5522. The bulk of the territory was acquired by the Commonwealth from New South Wales in 1911, as the site of the new capital, Canberra; 28 additional miles were obtained in 1917 as the site for a naval college.

FEDERATED MALAY STATES. A group of states, constituting a large part of the Malay Peninsula, under the protection of Great Britain, comprising: Perak, with an area of 7800 square miles; population in 1921, 590,055; capital, Taipang; Selangor, 3156 square miles; population, 1921, 401,009; capital, Kuala Lumpur, the largest city in the federation with a population of 80,000; Negri Sembilan, 2550 square miles; population, 1921, 178,762; capital, Seremban; Pahang, 14,000 square miles; population, 1921, 146,064; capital, Kuala Lipis. The total area is 27,506 square miles; with a population in 1921 of 1,324,890, comprising 510,821 Malays, 494,548 Chinese, 305,219 natives of India, 5686 Europeans, and 3204 Eurasians. The males greatly outnumber the females (853,528 to 471,362), which is due to the large number of Chinese and Indian immigrants. The estimated population in June, 1926, was 1,476,032. The movement of population in 1924 was: Births, 39,512; deaths, 33,585. In 1925 there were 45 English schools, with an average enrollment of 11,194 boys and 2682 girls. Vernacular schools under the control of the education department numbered 1028 with an average enrollment of 52,789. There are many vernacular schools for the Chinese not maintained by the government.

The chief products include: Rice, coconuts, rubber, sugar, tapioca, pepper, gambier, and nipa palms. The main industries are the raising of rubber and the mining of tin. In addition to valuable timber, the forests produce resins, canes, gutta percha, etc. Besides tin, gold is mined extensively; other minerals found but not worked in quantities are lead, iron, copper, manganese, silver, zinc, plumbago, mercury, arsenic, and scheelite. At the end of 1925, 107,257 persons were engaged in the mining industry. The latest figures available on commerce are those given in the preceding YEAR BOOK when exports totaled $715,818,000 and imports $540,760,000, leaving a favorable balance of trade of $175,058,000. This was largely due to the unusually high prices obtainable for rubber.

The revenue of the states in 1925 was £10,099,166 and the expenditures £8,114,210. The public debt on Jan. 1, 1926, was £11,105,000. The total railway mileage open to traffic was 1073 miles and the number of miles under construction in the same year was 116.

The states are under British protection and the British government is represented by the governor of the Straits Settlements who is *ex-officio* high commissioner for the Federated Malay States. High Commissioner in 1927, Sir Lawrence Nunns Guillemard.

FEDERATION OF LABOR. AMERICAN. See LABOR, AMERICAN FEDERATION OF.

FELTER, HARVEY WICKES. American author and editor of medical works, died at Cincinnati, Ohio, October 27. He was born at Rensselaerville, N. Y., June 15, 1865, and was educated at Lansingburgh Academy and in special courses at the University of Cincinnati. He received the degree of M.D. from the Eclectic Medical Institute of Cincinnati in 1888, and after a year spent in practice at Troy, N. Y., returned to Cincinnati, where he engaged in practice and in teaching at the Eclectic Medical Institute. He held several chairs and other positions, and was at the time of his death professor of medical history, materia medica and therapeutics. From 1904 to 1913 he was editor of the *Eclectic Medical Gleaner*, and after Jan. 1, 1913, was editor of the *Eclectic Medical Journal*, on whose staff he had previously served for many years. He was at one time president of the Cincinnati Eclectic Medical Society and the Ohio State Eclectic Medical Association, and was president of the National Eclectic Medical Association, 1920–21. He was a member of many other medical societies. He was interested in the Cincinnati chapter of the Wild Flower Preservation Society, being founder and editor of the magazine *Wild Flower*. He was also editor of Locke's *Syllabus of Eclectic Materia Medica and Therapeutics*, published in 1895, and the author of the following works: *King's American Eclectic Dispensatory* (revised and rewritten) (1898–1900); *History of the Eclectic Medical Institute* (1845–1902); and *Eclectic Materia Medica and Therapeutics* (1921).

FENCING. There was no competition for the Robert M. Thompson International Trophy in 1927, but the various championship tourneys held throughout the United States attracted more than ordinary interest. Only one national champion succeeded in retaining his title, this distinction going to Lieutenant George C. Calnan, U. S. N., in the foils. Harold Van Buskirk of the Fencers' Club, New York City, carried off the epée title while the sabre honors were won by Nikolas Muray of the New York Athletic Club. In the team championships, the New York Athletic Club won in the foils, sabre and three-weapon contests and the Boston Athletic Association was the victor in the epée competition. Yale University presented the strongest team in the intercollegiate championships, capturing one team title and two of the three individual crowns. Dernell Every won the foils title for Yale and Robert Nussbaum took the sabre laurels. Frank Sands of the Army was the victor with the epée. Yale won the sabre team competition; while Cornell triumphed with the foils and Army with the epée.

Miss Stephanie Stern of Offenbach, Germany, representing the Philadelphia Sword Club, won the women's foils title, capturing all ten of her matches. The junior foils laurels went to Miss Margaret Boyle of the Brooklyn Edison Club.

FERDINAND, Victor Albert Mainrad. King of Rumania, died at Sinaia, the summer residence of the royal family, July 20. He was born at Sigmaringen, Prussia, Aug. 24, 1865, the son of Prince Leopold of Hohenzollern-Sigmaringen and Antonia, Infanta of Portugal. His uncle, Prince Charles, became the first King of Rumania, while his eldest brother kept the succession to the Hohenzollern-Sigmaringen principality. In view of the possibility of King Charles and Queen Elizabeth dying without issue, Prince Ferdinand was declared heir presumptive in March, 1889. On Jan. 10, 1893, he married Princess Marie, the eldest daughter of the late Duke of Edinburgh, and granddaughter of Queen Victoria and also of Czar Alexander II. Prince Ferdinand made his home in Rumania from the time of his adoption as heir and became very fond of his adopted country. Prince Carol, the eldest of his six children, was born Oct. 3, 1893, and married in 1921 Princess Helen of Greece; their son, Prince Michael, was born in the following year. At the time of the outbreak of the World War in 1914 Charles I, King of Rumania, and Queen Elizabeth, known also as Carmen Sylva, did not resist the French influence; Premier Bratianu also sympathized with the Allies and announced a policy of neutrality which the council declared.

Upon the death of King Charles, Ferdinand ascended the throne, Oct. 11, 1914, and for nearly two years neutrality was maintained, the sympathy of Queen Marie being with the Allies and the general sentiment of the country favoring such an alignment. On Aug. 26, 1916, King Ferdinand summoned his ministers, his party leaders, and Crown Prince Carol into a council, and announced that notwithstanding he was a Hohenzollern he must decide in favor of the Allies on the score that the Rumanian state must be considered first, and called for united support. During the War, in the course of which four-fifths of the country was overrun by German and Austrian armies, the King and Queen gained a permanent place in the hearts of their people. The King shared the hardships of his troops and of the population generally, and even the defection of the Russians, subverted by Bolshevist propaganda, only brought about greater efforts. His army at the battle of Marashesti withstood the Austro-German attack with courage.

During the War his troops suffered heavy casualties, and the resources of the country were exhausted, notwithstanding the aid furnished by the Allies. Both the King and the Queen strongly held out against making peace with the Austro-Germans, but he was forced to agree to an armistice on Dec. 7, 1917. Nevertheless, he did not sign the treaty of Bucharest, May 7, 1918, which took from Rumania a strip of territory along the Carpathians including all the passes, the valley heads, observation posts, the "Iron Gate" of the Danube, and rich oil concessions. This treaty was signed by the prime minister under compulsion, but King Ferdinand, fleeing through mountains and forest, was able to evade acknowledgment of the document. The terms of this treaty would have deprived Rumania of all defenses in any future trouble with the Central Powers, and indicated in a general way the real ambitions of the Germans in the World War.

The triumph of the Germans, however, was comparatively short lived, as the attack of the Allies on the Western front caused the Germans to withdraw their forces from Rumania in an unsuccessful effort to meet the offensive. After the armistice of Nov. 11, 1918, King Ferdinand demanded the evacuation of his country by the enemy forces, and on Dec. 1, 1918, at the head of the remnant of his army he entered Bucharest in triumph. In the meantime the Allies, through the action of a secret treaty made in 1916, transferred from Russia and Hungary to Rumania important and extensive territory, including parts of the Banat, Bukowina and Transylvania, and Bessarabia was added to Rumania. King Ferdinand in 1919 had sanctioned an expedition into Hungary which had been provoked by the aggression of Bela Kun, the Hungarian Bolshevist, and the King's army entered Budapest in August, 1919. He demanded reparation from Hungary on a more ample basis than was given under the terms of the armistice. On Oct. 15, 1922, King Ferdinand and Queen Marie were crowned King and Queen of Greater Rumania at Alba Julia, where in 1601 the union of all Rumanians had been proclaimed by Michael the Brave.

From this time King Ferdinand had a severe and, on the whole, a thankless task in his efforts to serve the country as a whole and promote agrarian reforms and the cause of universal suffrage. He was the first to surrender large parts of his estates to be divided for the benefit of peasant proprietors, and he advocated the granting of full civil and political rights to the Jews. He had many political worries, and the conduct of his eldest son, Prince Carol, was a source of serious concern both to his parents and to the state. At the height of the War, Carol left the army and eloped with a Rumanian girl with whom he contracted a morganatic marriage. This marriage subsequently was annulled by both state and church, and the Crown Prince was convicted as a deserter and sentenced to 75 days in prison. Later a number of points of difference with his father developed, and in 1925, indulging in another escapade, Carol renounced all his rights of succession. Accordingly, on Dec. 31, 1925, King Ferdinand summoned a crown council at Sinaia, in which he announced the surrender of the rights and prerogatives of the crown prince and proposed as the heir to the throne the little Prince Michael.

On Jan. 4, 1926, an act of succession was passed by a special session of Parliament, providing for a council of regency to be composed of the King's second son, Prince Nicholas, the patriarch of Rumania, and the president of the court of cassation. To add to these troubles of the King, further domestic difficulties befell his daughter, whose husband, King George of Greece, had been deposed from the throne. In his earlier years King Ferdinand was a keen sportsman. In the autumn of 1926 he suffered a serious breakdown, and his disease was diagnosed as caused by a malignant internal growth, with slight prospects of cure or improvement. His consort, Queen Marie, visited the United States during the autumn of 1926, but was forced to return to her husband owing to the rapid development of his disease. In May the King was moved from the capital to his palace at Sinaia. Notwithstanding the efforts of various specialists, he declined in health. In his last illness he rallied long enough to confirm by his signature the documents involved in the Parliamentary elections. The final cause of death was pneumonia. See RUMANIA.

FERTILIZERS. Accurate figures for the consumption of fertilizers during 1927 were not available at the end of the year. It was estimated that the United States used 7,500,000 short tons of fertilizers annually. This represents little increase in tonnage in recent years, but probably some increase in actual plant food, due to the higher grade of fertilizers now used in America. Other countries, especially certain European countries, were increasing their consumption of fertilizers and were far ahead of the United States in per acre use. The use of fertilizers was also extending to regions which had not heretofore felt the need or economic advantage of using them.

Figures published by the U. S. Department of Commerce indicated that both imports and exports of fertilizing materials as a whole decreased during the year 1927, although this was not true of certain materials. Exports of ammonium sulphate declined and imports increased. Exports of phosphate rock and superphosphate increased. There was a sharp decline in imports of sodium nitrate and potash salts.

Relatively low prices prevailed in the United States for fertilizers as compared with prices of other commodities and farm products. The spring prices of fertilizers were stated to be only 6 per cent above the pre-war level, while the general commodity level was 46 per cent above and of farm products 26 per cent above the pre-war level.

Representatives of fertilizer manufacturers and dealers took steps during the year to secure the general adoption of a code of trade practices calculated to eliminate waste and unfair practices and stabilize prices, which should greatly benefit the fertilizer business. The fertilizer business as well as users of fertilizers should also be benefited by the continued efforts to reduce the number of grades offered for sale and by a recent proposal to adopt a uniform method of stating fertilizer analyses.

As a result of recent developments in fixation of nitrogen and other improvements in fertilizer manufacture, highly concentrated fertilizers, such as ammonium nitrate, ammonium phosphate, ammonium chloride, urea, and various others were being produced. The value of many of these materials as fertilizer had been established and they were appearing on the market in considerable quantity. They had been shown to compare favorably with the more commonly used fertilizing materials, such as sodium nitrate, ammonium sulphate, and superphosphate. Germany had taken the lead in this development, but France, England, the United States, and other countries were taking steps in the same direction. It was stated that England expected to become self-sustaining as to its supply of combined nitrogen by supplementing its large ammonium sulphate industry with the nitrogen fixation process. It was claimed that Germany was able to produce nitrogen in form of air nitrogen compounds for less than nitrogen was selling in the United States.

Competition of the synthetic products had caused the Chilean nitrate interests to give more serious attention to improving methods and reducing the cost of preparing their product for the market. It was reported during the year that the cost of production of marketable Chilean nitrate had been reduced 50 per cent by the introduction of the Guggenheim and Prudhomme processes of extraction, thus making the working of poorer beds profitable. E. V. Wilcox, after studying the situation at first hand, stated, "I believe that Chile will continue to produce nitrate at a profit, but that her monopoly of the industry is definitely broken and that hereafter she will have to divide the business with the producers of other kinds of nitrogen."

The price of nitrate was reduced approximately $9 per ton during the year, and unlimited export was permitted by the Chilean government after July 1, 1927. Speaking of these changes in policy, a representative of the Chilean Nitrate Producers' Association said: "The abrogation of the twenty-five-year-old agreement limiting the amount of nitrate exported from Chile will permit the delivery of large quantities at reduced prices. In addition, the development of new processes of nitrate extraction is achieving a radical reduction of cost. Without doubt world consumption, and particularly United States consumption, will expand in response to these factors." A substantial increase in sales for delivery after July 1 appears to have been the response to the change in policy.

The status of Muscle Shoals as a factor in the production of synthetic nitrogen compounds remained undetermined. Three main proposals were before Congress when it assembled in December. One provided for leasing of the project to the Air Nitrates Corporation and the American Cyanamid Company, another proposed leasing to the Farmers' Federated Fertilizer Corporation, and a third recommended the appropriation of $150,000,000 and government operation of the project. Recent discussion of this project dealt largely with its utilization for power production with incidental use for the production of fertilizers.

The price of potash advanced 9.5 per cent during the year, and there was evidence of strengthening of the monopoly which controlled the world's supply of this essential ingredient of fertilizers. The world was still dependent upon the potash deposits of Germany and France for 95 per cent of the potash it needs, despite renewed and widespread efforts to develop other sources, stimulated by the advancing price of the European product.

The United States was making some progress in developing its domestic potash resources, but was still dependent upon Europe for fully 75 per cent of the potash it used. Progress was made in the United States in developing chemical processes for recovering potash from various potash-bearing minerals and trade wastes of which there is an abundant supply. The practicability of recovering sufficient potash from available home resources was demonstrated. The immediate problem was that of perfecting methods and rendering the processes economic. Continuing the development of the commercial possibilities of natural deposits of potash salts, active operations with a considerable output were going on at Searles Lake, California, which was estimated to have a potential supply of 30,000,000 tons of potash. The explorations of the U. S.

Geological Survey and the Bureau of Mines in Southwestern Texas and Southeastern New Mexico, for which Congress made an appropriation of $100,000 a year for five years, continued to give encouraging results. An area of 60,000 square miles was under observation and had been partly explored. Beds of potash salts richer and in some cases at less depth than those of Germany, but not so rich as those of Alsace, had been found. Crude salts containing as high as 18.5 per cent of pure potash were reported. The thickness and extent of the beds have, however, not been adequately determined.

Italy was especially active in search for new sources of potash. Investigations of Spanish deposits discovered some years ago indicated them to be of considerable potential value, but there was little progress in developing them. The possibility of commercial extraction of potash from the waters of the Dead Sea was recently exploited. It was stated that there appeared to be no insuperable technical difficulty in producing 100,000 tons of potassium chloride annually from the sea waters, using natural evaporation, but the commercial possibilities of the undertaking had not been definitely determined and the commercial feasibility appears doubtful.

The U. S. Department of Justice brought suit during the year to prevent the German and French potash interests from entering into agreements or setting up selling agencies in this country which might be violative of the anti-trust laws of the United States. The prosecution of this suit was complicated by the fact that the French and German potash producers were closely allied with their respective governments, and action in the matter was delayed.

Pending litigation or satisfactory adjustment of the matter, the importation and sale of potash in the United States was allowed to proceed without interference.

The imports of potash into the United States for 1927 amounted to 623,109 tons, valued at $13,423,925, as compared with 815,714 tons, valued at $14,122,699 in 1926, indicating a falling off in quantity but a marked increase in cost to the American consumer. For discussion of world production in 1927, see Potash.

The United States exported 107,462 tons of superphosphate valued at $1,613,854 during the year ending Dec. 31, 1927, as compared with 64,452 tons valued at $937,278 during 1926. The exports of rock phosphate during 1927 amounted to 918,256 tons valued at $4,733,174 as compared with 748,963 tons valued at $4,435,590 in 1926. The imports of phosphatic materials amounted to 101,815 tons valued at $2,102,395 in 1927 as compared with 68,710 tons valued at $1,661,914 in 1926.

A proposal to substitute "superphosphate" for "acid phosphate" to designate the fertilizing material resulting from the treatment of insoluble phosphates with acid to render the phosphoric acid more available received favorable consideration during the year and was tentatively approved by the Association of Official Agricultural Chemists. The term was first used for the purpose indicated by Sir John Lawes in 1842 and is generally used except in the United States. See Chile.

FESTIVALS. See Music.

FEUSTMAN, Leon Philip. American engineer and manufacturer, died in New York City, April 7. He was born at Philadelphia, Pa., in 1861, and was educated in the public schools of that city and the University of Pennsylvania, from which he was graduated in 1882. His first employment was as a chemist at Leadville, Colo., where he remained for six years, and in 1888 he went to Mexico for the Consolidated Smelting and Refining Company, later becoming resident manager for that company's interests in Mexico. In 1900 he went to New York City having served as resident manager for the Guggenheim interests of Mexico, and continued with these properties until 1903, when he became vice president of the Power and Mining Machinery Company. In 1907 he was made vice president and general manager of the International Steam Pump Company, with which the Power and Mining Company was combined, and later, when the company was reorganized as the Worthington Pump and Machinery Corporation, Mr. Feustman held the same position in the new organization. He was active in the development of the first American Diesel engines, some of which were installed on vessels of the United States Shipping Board. He was a member of the American Institute of Mining and Metallurgical Engineers and other organizations.

FICTION. See Literature, English and American; French Literature; German Literature; Spanish Literature; etc.

FIDELITY INSURANCE. See Insurance.

FIELD, James Alfred. American economist, died at Boston, Mass., July 16. He was born at Milton, Mass., May 26, 1880, and after graduating from Harvard in 1903 took post-graduate work there and at the University of Berlin. He was assistant in economics at Harvard University, 1903–04, Austin teaching fellow in economics, 1904–05, instructor, 1906–08, and instructor in economics at Radcliffe College, 1906–07. In 1908 he went to the University of Chicago as instructor in political economy, becoming assistant professor in 1910, associate professor in 1913, full professor in 1918, and dean of the College of Arts and Literature, 1923–24. He was associate editor of the *Journal of Political Economy*, special investigator for the division of statistics of the Council of National Defense in 1917, and chief statistician of the American Shipping Mission and the Allied Maritime Transport Council at London, 1918–19. He was a fellow of the American Statistical Association and a member of the American Economic Association. His works include: *The Progress of Eugenics* (1911); (joint author) *Outlines of Economics* (1910); and *Materials for the Study of Elementary Economics* (1913).

FIELD ATHLETICS. See Athletics, Track and Field.

FIJI ISLANDS. A British crown colony, comprising a group of islands in the South Pacific about 250 in number (some 80 inhabited). Area, 7083 square miles; population at the census of 1921, 157,266, of whom 84,475 were Fijians, 60,634 Indians, and 3878 Europeans. The largest island is Viti Levu (4053 square miles) and the next Vanua Levu (2130 square miles). The capital, Suva, on the south coast of Viti Levu, had a European population (including suburbs) of 1741. Coconuts, sugar cane, rice, tobacco, tea, tropical fruits, beans, sisal, and hemp are the principal products. Horses, mules, cattle, sheep, goats, and pigs are raised. No later figures for trade are available than those for 1925 when the exports were valued at £2,156,257 and the imports at £1,271,135. The revenue in 1924 was £488,906; expenditure, £451,257; public debt, £359,200. The total tonnage which entered and cleared in 1924 was 799,214 tons of which 690,076 were British. A privately owned small-gauge railway of 120 miles runs from Tavua to Sigatoka. The executive power is vested in a governor, appointed by the crown, aided by an executive council and a legislative council of which the governor is president. The governor is also High Commissioner for the Western Pacific. Governor in 1926, Sir Eyre Hutson, K.C.M.G., appointed 1925.

FILDES, Sir Luke. British painter, died at London, February 27. He was born at Liverpool, England, Oct. 18, 1843, or, according to some accounts of his life, in 1844. He was educated at a private school, and studied art at the South Kensington Art Schools and the Royal Academy School. For some years he devoted himself mainly to book and magazine illustration; among his works was a set of illustrations for the story which Charles Dickens left unfinished, *The Mystery of Edwin Drood.* Passing from illustration to work in oil, Fildes exhibited in 1872 his first picture in that medium, "Fair, Quiet and Sweet Rest." It attracted favorable notice, and "The Casual Ward," shown two years later, established his reputation as a painter of the life of the suffering poor of London. The most popular of his paintings is "The Doctor," which depicts a physician watching intently at the bedside of a sick child; it has been reproduced many times. In painting the portrait of his wife, Fildes discovered his talent as a portrait painter. Among his sitters were King Edward VII and Queen Alexandra (1901), and King George V (1912), for state portraits. His vividly colored pictures of street scenes in Venice are well known and have been reproduced frequently. He was honored by election to the Royal Academy in 1887, by knighthood in 1906, and by creation as a Knight Commander of the Victorian Order in 1918.

FINANCE. See Public Finance.

FINANCIAL REVIEW. Contrary to the tendencies to be noted in American business conditions during the business year of 1927, the financial year showed exceptionally satisfactory and prosperous developments. Speculation was active and prices of securities were high. The loanable funds were abundant and new issues were not only placed on the market in large amount, but were very readily taken. The volume of funds disbursed as interest and dividends was unprecedentedly large. General conditions were exceptionally satisfactory from the technical speculative standpoint, the market showing an unusual degree of stability with remarkable "support" for securities of almost all descriptions.

Stock Exchange Operations. New York Stock Exchange operations for another year recorded a very high level of turnover, the aggregate number of shares transferred during the year being 577,000,000, while the total volume of bonds transfered was $3,321,000,000 par value. During the year, the extreme breadth of trading gave rise to a number of exceptionally heavy sessions of the New York Stock Exchange, the total being 145 1,000,000 share days and three 3,000,000 share days in the course of the twelvemonths. Active business naturally advanced the price of Stock Exchange seats which rose, toward the close of the year, to a level of about $310,000. Prices on the Exchange, in the main, held their own unexpectedly well notwithstanding that the year had opened with the general level already very far advanced. An index of 50 representative shares showed at the high point of the year a combined average of 185.47 on October 4 as compared with a low of 135.82 near the opening of the year, on January 27, while a similar index of 50 representative bonds showed a quotation of 92.98 at the high point on December 1, as compared with 89.47 at the beginning (January 3).

While there were some broad fluctuations during the year with tendency to depression at one or two periods when credit had become overstrained, the general outcome was such as to maintain values with an uncommon degree of steadiness and it was currently noted by brokers that there had been evidence of an unusual degree of support on all occasions when distinct reaction in favorite shares took place. Good business during the first six months of the year tended strongly to maintain the general level of stock prices, while some exceptional dividend distributions, such as the 40 per cent stock dividend of U. S. Steel, likewise helped to keep values up. Unusual business profits in the case of a few concerns, such as General Motors and certain of the companies allied with it, succeeded in helping the generally strong tendency up to the end of June. During the second half of the year, exceptionally easy money with a 3½ per cent rediscount rate at the Federal Reserve banks, and a very large amount of interior bank funds in the New York market for lending on call, likewise tended to maintain the level of prices that had already been scored during the first half of the year.

Reaction in some industries, illustrated by poor railroad earnings, tended to reduce quotations in those departments during the last quarter of the year, a situation which was prevalent particularly in the coal and oil groups of shares. This, however, was partly offset by improvement in certain other groups, such as the coppers which were aided by distinct advances in the price of copper metal, and in a number of the public utilities which were likewise unusually prosperous. Toward the close of the year, the increasingly poor showing among industrial earnings at large was a depressing factor, while an element of strength was found in the unusual number of extra dividends or dividends at a higher rate which were declared by a very widespread group of companies drawn from many different lines of industry.

It should be added that the last quarter was also witness to depression in the prices of some industrials and particularly of certain companies, due to reduction or passing of dividends, although these instances were decidedly less numerous than those of increase or extra distribution. A factor which tended to emphasize the larger distribution of funds was found in the opinion, widely entertained, that Congress was likely to adopt a measure for the taxation of undistributed surpluses.

New Issues. New issues during 1927 proved to be exceptionally numerous. both of foreign and of domestic securities. There was also unusual activity in refunding and in remodeling the capital structure of various corporate enterprises which had retained the power to call in old outstanding issues of stocks and bonds. This activity was the direct result of the lowering of rates of interest which as always tended to raise the value of existing fixed rate issues and thus to enable borrowers to get funds at decidedly more economical figures than had previously been feasible. The fact that a great many concerns were already well financed and did not find it necessary to enter the market left the field comparatively clear for new flotations embodying in many cases the results of mergers, reorganizations, and undertakings of kinds which, in some instances at least, had not previously been deemed eligible for corporate organization. Additional to these elements in the case was the fact that in many instances railroads, which, as is well known, had for a long time past been unable to place stock on the market and had financed themselves largely through the issue of bonds, found it needful to obtain funds for new construction and succeeded in doing so by placing on the market either common or preferred shares.

According to the compilations of the *Journal of Commerce* of New York, the new and refunding issues of 1927, classified by type of issue and arranged to show division of the securities as among industries, were as shown below in the accompanying table.

Dividends on industrial shares, as reported for the year, were $1,585,475,000 as compared with $1,189,550,000 in 1926, while steam railroad and traction dividends were $474,800,000 as compared with $439,810,000 during the preceding year. The year was characterized by a very large number of extra and stock dividends. Studies made on this subject showed a total number of extra dividends in the course of the year amounting to not less than 500.

Special attention should be given to issues of foreign securities in the American market during 1927. According to private estimates, the total volume of such issues, including both long and short term securities, was above $2,000,000,000, while bonds alone accounted for about $1,544,000,000 of this sum. The issues were made in behalf of governments and firms in all parts of the world but about $885,000,000 represented European issues, while about $122,000,000 originated in Central American countries and $475,000,000 in Canada. While these issues were generally made at a necessarily higher rate than was borne by domestic issues, many of them represented loans of satisfactory character and in other cases the bonds, although open to doubts arising out of the political surroundings of the issuers, were in other respects of high grade character. The steadily increasing volume of such issues, however, naturally involved anxieties with respect to the balance of trade and the possibility of collecting the indebtedness as time passed and obligations matured. The table on the following page, issued by the Department of Commerce in August each year for the year preceding represents the so-called "balance sheet of the United States".

NEW AND REFUNDING SECURITY ISSUES, 1927 AND 1926
[*Grand totals exclude real estate issues*]

	1927	*1926*	*Change*
Railroads:			
Bonds	$685,406,500	$267,733,000	+ $417,673,500
Notes	100,102,000	83,562,000	+ 16,540,000
Sub total	785,508,500	351,295,000	+ 434,213,500
Stocks	5,693,500	9,448,500	− 3,755,000
Total	791,202,000	360,743,500	+ 430,458,500
Public utilities:			
Bonds	1,885,245,500	1,357,882,500	+ 527,363,000
Notes	198,587,000	93,185,000	+ 105,402,000
Sub total	2,083,832,500	1,451,067,500	+ 632,765,000
Stocks	321,465,882	216,683,450	+ 104,782,432
Total	2,405,298,382	1,667,750,950	+ 737,547,432
Manufacturing:			
Bonds	694,985,000	317,352,200	+ 377,632,800
Notes	57,085,000	174,001,000	− 116,916,000
Sub total	752,070,000	491,353,200	+ 260,716,800
Stocks	335,201,897	356,275,800	− 21,073,903
Total	1,087,271,897	847,629,000	+ 239,642,897
Other Industrial and miscellaneous:			
Bonds	925,680,000	377,941,000	+ 547,739,000
Notes	333,860,000	159,941,000	+ 174,119,500
Sub total	1,259,540,000	537,681,500	+ 721,858,500
Stocks	426,974,726	229,838,900	+ 197,135,826
Total	1,686,514,726	767,520,400	+ 918,994,326
Government and municipal:			
Total	1,867,230,449	1,922,007,101	− 54,776,652
Farm loan:			
Total	169,450,000	131,325,000	+ 38,125,000
Real estate:			
Total	660,012,625	736,164,980	− 76,152,355
Grand total	**8,006,967,454**	**5,696,975,951**	**+2,309,991,503**

ESTIMATED BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES, CALENDAR YEAR, 1926

[*Millions of dollars*]

Items	*Exports (visible and invisible) and cash receipts (credits)*	*Imports (visible and invisible) and cash payments (debits)*	*Balance*
MISCELLANEOUS ITEMS			
Commodity trade:			
Merchandise exports and imports (as reported)	4,808	4,431	+ 377
Silver	92	70	+ 22
Bunker coal and oil sales to foreign vessels	78	20	+ 58
Ship chandling and ship repairs	10	4	+ 6
Sale of vessels	1	0	+ 1
Unrecorded parcel-post shipments	19	25	− 6
Contraband liquor imports	....	40	− 40
Home administration of certain concerns producing imports (deduction)[a]	30	....	+ 30
Total	5,038	4,590	+ 448
Freight payments and receipts:			
Overseas and Great Lakes traffic	113	175	− 62
American railway earnings on transit traffic	16	2	+ 14
Payments for foreign inland freight on United States imports	....	20	− 20
Tourist expenditures	115	761	− 646
Ocean-borne passenger traffic	63	....	+ 63
Yield of long-term private investments:			
Received from our investments abroad	678	....	+ 678
Paid to foreign investors in United States	....	150	− 150
Yield of short-term interest and commissions:			
Collected from foreigners abroad	57	....	+ 57
Paid to foreigners abroad	....	78	− 78
Immigrants' remittances	35	322	− 287
War-debt receipts of United States Treasury:			
Interest	160	....	+ 160
Principal	35	....	+ 35
Other United States government receipts; United States government payments	17	68	− 51
Charitable and missionary contributions	....	46	− 46
Motion-picture royalties	75	4	+ 71
Insurance transactions	80	70	+ 10
Miscellaneous minor items:			
Imports of Canadian electric power	....	12	− 12
Foreign subscriptions to American press	5	1	+ 4
American advertising abroad	1	8	− 7
Cable charges	5	....	+ 5
Total of current items	6,493	6,307	+ 186
MOVEMENT OF PRIVATE, FUNDED CAPITAL			
New American investments abroad[b]	....	1,332	− 1,332
Changes in previous American investments abroad:			
Bond redemption payments to Americans	250	....	+ 250
Sinking-fund payments to Americans	20	....	+ 20
Resale to foreigners of direct investments	200	....	+ 200
Foreign stocks and bonds sold abroad[c]	286	....	+ 286
Foreign stocks and bonds bought from foreigners in small lots	....	115	− 115
New direct investments in United States by foreigners	32	....	+ 32
Changes in previous foreign investments in United States:			
Redemption and sinking-fund payments to foreigners	....	25	− 25
American stocks and bonds sold abroad	636	....	+ 636
American stocks and bonds bought abroad	....	509	− 509
Total of private funded capital items	1,424	1,981	− 557
PURE-CASH ITEMS[d]			
Gold	116	214	− 98
United States paper currency	....	40	− 40
Total gold and currency	116	254	− 138
Grand total, all items	8,033	8,542	− 509
UNFUNDED ITEMS			
Net change in international banking accounts, as revealed by questionnaire	359	....	+ 359
Discrepancy, due to errors and omissions	....	....	− 150

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[a] Not an export. Entered in credit column as a deduction from the merchandise debit.

[b] Net sum (compiled and estimated) made available in foreign countries on account of publicly offered and privately taken foreign loans and direct American investments abroad, after deductions for refunding, for underwriters' commissions and for bond discounts.

[c] Some of these foreign securities are known to have been acquired earlier in 1926; so they are not exclusively "previous American investments abroad."

[d] Observe that imports (receipts) of gold and currency appear in the debit column, while all other entries in the debit column are, predominantly, cash payments; the credit column contains similarly divergent entries.

MOVEMENT OF GOLD. During the year 1927, movements of gold into and out of the United States and into and out of our ownership continued to be unusually large. The Secretary of the Treasury estimated the changes of ownership at close to $500,000,000 (combined exports and imports including ear-marked gold) although the net result of the year's operations was to cut the supply of gold on hand by only about $151,000,000. The gold actually shipped abroad was sent in some considerable measure as a result of arrangements for the supplying of specie for bank reserves in countries where stabilization of currency or restoration of the gold standard was under advisement, while in other cases the shipments grew out of differences in the exchange position which made it profitable to send gold simply as a matter of business routine A good deal of gold was sent to the Orient, including India and the Dutch East Indies as points of destination while still more was sent to England, Holland, the Scandinavian countries and others Mr. Mellon, Secretary of the Treasury, in his annual report referred to the credits negotiated with foreign countries with the reserve system as being an important cause of the gold movement. Among such credits were those promised to Poland, Italy, one or two of the South American countries, and to France on a tentative basis, while there had already been commitments to England, Belgium and several other countries. In the following table the distribution of gold exports is briefly reviewed:

FOREIGN GOLD

[*Shipments definitely known as reported by the Federal Reserve Bank since Jan. 1, 1927, to Dec. 31, 1927. (000 omitted)*]

Country	*Imports*	*Exports*	*Balance*
Argentine	.....	$61,390	$61.390[a]
Belgium	.....	1,000	1,000[a]
Brazil	.....	34,175	84,175[a]
British South Africa	$118	.....	118
Canada	51,500	26,000	25,500
Chile	6,574	.....	6,574
Colombia	90	.....	90
Dutch East Indies	.....	650	650[a]
Ecuador	1,000	.....	1,000
France	20,968	10,000	10,968
Germany	. .	13,600	13,600[a]
Great Britain	36,483	8,578	27,946
India	.. .	2,375	2,375[a]
Java	....	350	350[a]
Latin America	2,630	.....	2,680
Mexico	.....	1,747	1,747[a]
Netherlands	14,491	8,000	6,491
Peru	400	. ...	400
Poland	.....	5,000	5,000[a]
Sweden	.....	1,027	1,027[a]
Straits Settlements	.....	1,595	1,595[a]
Uruguay	.....	2,000	2,000[a]
Not stated	13,316	10,257	3,059

[a] Excess of exports.

COMMODITY PRICES. The principal commodity prices during the year 1927 followed a rather more favorable course than in the preceding year, especially in so far as they represented agricultural commodities. Wheat which had seemed early in the year to be in danger of turning out a short crop actually did produce (taking winter and spring combined) about the same amount as in the previous year, but the product was better distributed and prices maintained a more regular course with lessened fluctuation though better on the whole for the farmer than in any recent crop season. Wheat (No. 2 red) was however quoted at the close of 1927 at approximately $1.49¾ @ $1.50¾ a bushel (Chicago) while at the opening of the year the price was approximately $1.53¾. Cotton on the other hand was decidedly above the level of 1926, due to the decided shortening of crops which had occurred and was also very much less erratic and fluctuating in its movements. At the opening of the year the quotation of middling upland had been approximately 13c. a pound, but this figure was raised to 20c. at the close of 1927 while the carryover had been distinctly reduced through substantial mill buying in addition to the shortening of the actual output.

The year was also favorable from a price standpoint in connection with animal industry. Family beef which had been $22 a hundred pounds at the opening of January was quoted at $33 at the end of the year although mess pork which had been quoted at $35.50 a hundred at the beginning of 1927 was $32 @ $34 at the close. Similar changes occurred in other phases of the farming industry. On the other hand prices of imported commodities such as rubber, sugar, coffee, and the like, showed distinct tendency to decline, as the result in part of changes in foreign methods of control of values, but also as the result of changes in domestic demand, the automobile industry for instance being decidedly a less heavy buyer than had been the case during 1926.

FOREIGN EXCHANGE. Due to the efforts at stabilization which had been vigorously prosecuted by a number of countries during 1925 and 1926, the 12 months of 1927 were a period of very much less disturbance in the foreign exchange field than had been true on any recent occasion. There was a smoothing out of the curves of exchange quotations and a lack of speculative excitement which had not prevailed, for a long time. Interest of course naturally centred around the French franc, in the European field, there being doubt as to whether the Poincaré government would be able to stick to its policy of holding the quotation level. Substantial success was however attained in its effort, the franc varying during the year not more than five points between highs and lows for the entire 12 months, starting early in 1927 at about 3.93c. and closing the year at 3.94c. Marks, under the policy of pegging which was still pursued by the reparations authorities in Berlin, showed at no time any material change in quotations. Italian lire which had manifested in the spring of the year a considerable disposition to erratic fluctuation with a low of about 4.21c. were artificially pegged at a figure around 5½c. at about the end of June. Later on the Mussolini government announced its adherence to a plan of complete stabilization with the lira rigidly maintained at 5½c. Actual quotation at the end of December was 5.28c. Temporary stability had thus been insured but time had not yet been afforded for a complete test.

Polish exchange which had been erratic in the early months of the year tended to become quieter and firmer after the more or less successful flotation of the Polish loan on an international basis during the spring of 1927. British sterling tended to be weak during the early months of the year, ruling around $4.85, but gradually increased in value until toward the close of December it reached a level which made the gold exports from the United States fairly worth while, with a quotation of $4.88 at the end of December.

Dutch exchange ruled strong, practically throughout the entire 12 months, Holland succeeding in restoring in part her gold circulation and exacting gold from the United States toward the end of the year. The final quotation of the guilder was 41.50c. as against 39.99c. twelve months earlier.

Scandinavian quotations were relatively inactive and steady with a tendency to the movement of gold into both Norway and Denmark.

In the South American field the notable event of the year was the preparation for stabilization of the Brazilian milreis around a quotation of

11.87½ cents with the aid of substantial exports of gold from the United States. The most interesting development in the Oriental field was the effort to give greater stability to the Japanese yen as recovery from earthquake conditions steadily proceeded and as actual progress was made towards overcoming the effects of the serious epidemic of bank failures during 1926. The yen however continued to fluctuate and reached a quotation at the close of 1927 of 46.44 cents as against 48.77c at the opening of the year.

Indian rupees showed decided strength practically throughout the year, while preparations for currency reform in India tended to draw specie from abroad. The quotation of the rupee at the close of December was at 36.87c (cables) as against 30.50c at the beginning of the year.

In general the status of exchange conditions at the close of the year was regarded as far more normal and satisfactory than for a long time past although the outcome of the French elections in the spring of 1928 was naturally awaited with some anxiety because of the possible change in party control which might be produced at that time.

MONEY RATES. The year 1927 was a year of exceptionally low money rates and generally "easy" money. So far as Reserve banks were concerned, the same stability which had been characteristic for a couple of years continued to prevail. The rate at all Federal Reserve banks except New York was 4 per cent from Nov. 3, 1925, to July 28, 1927, inclusive. The New York Bank maintained a 4 per cent rate except for the period Apr. 23, 1926 to Aug. 12, 1926 inclusive, when a 3½ per cent rate was effective. Shortly after the change in rate had been effected by the Reserve Bank of New York on July 28, 1927, cuts to the same level were made throughout the system, the first reduction in line with that of New York being at Kansas City on July 29, while the last to fall in line was Minneapolis on September 13.

The effort made by the Federal Reserve Board to enforce a general cut in rates aroused very widespread dissatisfaction throughout the Reserve system and gave rise to the impression that there was a concerted effort to force down rates throughout the country. This was sharply denied. Out of the controversy grew the general discussion of rates which occupied financial attention during the remainder of 1927. In the course of the discussion, D. A. Crissinger, Governor of the Federal Reserve Board, retired from office and was succeeded by R. A. Young, formerly Governor of the Reserve Bank of Minneapolis. In defense of the low rates in the United States, it was contended that they were necessary to protect the interests of the Bank of England and assist its effort to move steadily toward the reëstablishment of the gold standard. In criticism of the low rediscount rates was cited the fact that their tendency was to enlarge unduly stock market speculation and to bring about an unwarranted expansion of bank credit.

Rates in general likewise showed stability. The call rate fluctuated between 3½ and 4½ per cent throughout most of the year, and the efforts of the money committee of the Exchange were generally directed toward equalizing the supply of brokers' loans in the market, and to offset withdrawals from the interior by providing for additions originating with New York banks. Fluctuations beyond the limits named were accordingly temporary although a figure of 5 per cent was reached in December and a figure of below 3½ had occasionally been touched in midsummer. Throughout the country at large, rates continued easy, with comparatively little change during most of the year. Farmers on the whole found borrowing rather cheaper than in the past and the maintenance of a low rate of interest at western Reserve banks was defended on the ground that it was helpful to the agricultural population in moving crops. Rates as stated by the Federal Reserve Board for interior centres however were steadily high if (as already pointed out) not as high as in former years. According to the Board's compilations, they varied from 4½ to 8 per cent.

In the agricultural territory, some disturbance was caused as a result of misfortune attending three Farm Land banks, headed by the Kansas City Joint Stock Land Bank. These difficulties naturally led to the growth of an impression that farm loans were less reliable than formerly, and consequently to some tendency to an increase in rates. These, however, were sporadic and relatively minor movements. In the investment field, the actual yield in bonds and preferred stocks tended steadily to decline and at the end of the year was seldom more than 4½–5 per cent for securities that were regarded as favorites or especially sound. Bonds had been high at the opening of the year but, if anything, continued to advance somewhat and on the average to yield a lower rate of return as the season advanced. Preferred stocks and the better grades of common stocks in some cases reached unprecedented figures toward the close of the year, without any definite change in business prospects which would warrant such increases. The alteration was accordingly attributed to changes in the investment value of money, as a reflex of the very low rediscount and call rates which had been established in the Reserve system and in the open market. In fact, the prevailing ease and abundance of bank loans was by many reckoned the outstanding feature of the year's operations.

See also BUSINESS REVIEW; BANKS AND BANKING; INVESTMENT TRUSTS; PUBLIC FINANCE; TAXATION; ETC.

FINE ARTS. See PAINTING AND SCULPTURE.

FINK, BRUCE. American botanist, died at Oxford, Ohio, July 10. He was born at Blackberry, Ill., Dec. 22, 1861, and graduated from the University of Illinois with the degree of B.S. in 1887. From 1887 to 1892 he was principal of various high schools, and in the latter year became professor of biology in Upper Iowa University, where he served until 1903. In the meantime he had received the degrees of M.S. from the University of Illinois in 1894, A.M. from Harvard University in 1896, and Ph.D. from the University of Minnesota in 1899, and had carried on research work at the University of Chicago in 1903. He was professor of botany at Grinnell College, 1903–06, when he went to Miami University in the same capacity, holding that chair at the time of his death. He was a member of the Minnesota Botanical Survey, 1896–1903, and in 1906 was in charge of botany at the University of Washington Marine Station. He was associate editor of *Micologia* from 1908, president of the Sullivant Moss Society, president of the Iowa Academy of Science in 1904, president of the Ohio Academy of Science in 1912, and a member of many learned and other societies. He was the author of: *Tobacco*, a book on the tobacco problem which passed through four editions; *The Lichens of Minnesota* (1910); *Laboratory Exercises in Plant Physiology and Ecology* (1911); and many botanical papers, including a series on the classification and nature of lichens. He was botanical editor of the *Ohio Journal of Science*, and was engaged at the time of his death on a manual of the lichens of the United States.

FINLAND. An independent republic of Europe; formerly a grand duchy of the Russian Empire; an independent republic since 1917; bounded on the east by Russia, on the north by the Arctic Ocean and Norway, on the west by Sweden and the Gulf of Bothnia, and on the south by the Gulf of Finland. Capital, Helsingfors.

Area and Population. The total area exclusive of water is 132,642 square miles; population, according to the census of 1920, 3,364,807; estimated Dec. 31, 1925, 3,526,359. In 1925 the rural population made up 83 per cent of the total. The movement of population in the same year was: Births, 78,260; deaths, 47,493; marriages, 22,103; emigration, 2490. The principal towns with their populations in 1925 were: Helsingfors, 211,691; Abo, 61,031; Tammerfors, 51,717; and Viborg, 48,367. The Evangelical Lutheran religion is that of the national church to which the bulk of the population belongs, but freedom of worship is granted to all.

Education. For elementary education there were (1925) in the country 4434 elementary schools, with 228,801 pupils; 1710 lower elementary schools, with 54,612 pupils; and 867 infant schools under the superintendency of the church with 95,035 pupils. In the towns there were 1352 classes of higher elementary schools, with 41,842 pupils. For secondary education there were 112 lyceums, leading to the university, with 2293 teachers and 34,230 students; 61 middle schools with 569 teachers and 8396 pupils; eight training colleges for elementary school teachers, with 117 teachers and 1521 students; six for infant school teachers, with 460 students; 52 high schools for the people with 341 teachers and 2492 students. There are three universities: One at Helsingfors with 298 teachers and 3319 students in 1926; two at Abo; one Swedish, with 33 teachers and 157 students; and one Finnish, with 23 teachers and 188 students. There is also a great variety of agricultural, horticultural, forestry, industrial and other technical schools. In 1920 only 0.7 per cent of the persons who had reached their fifteenth year could neither read nor write.

Production. Agricultural pursuits form the chief occupation of the people of Finland, although the cultivated area only covers 6.1 per cent of the land. The principal crops of 1925 were as follows: Rye, 578,846 acres, yielding 347,575 tons; barley, 271,587 acres, 140,802 tons; oats, 1,072,414 acres, 586,559 tons; potatoes, 166,772 acres, 723,138 tons; hay, 2,447,186 acres. The butter production in the same year was 17,905 tons. The total land under cultivation was 5,269,511 acres. The livestock census in 1925 showed 401,664 horses, 1,870,603 horned cattle, 1,451,084 sheep, 11,767 goats, and 378,383 pigs. The forests are a great source of wealth, Finland being better off in that respect than any country in Europe except Russia. Finland had, in 1925, 3217 large factories, employing an aggregate of 114,005 workers, and yielding an aggregate product of 10,126,000,000 marks, The three leading groups from point of view of output were wood industries, paper factories, and iron and mechanical works.

Commerce. No later statistics on commerce were available for individual items than those given in the preceding Year Book. Imports for 1926 totaled 5,659,600,000 Finnish marks and exports 5,633,300,000, reversing a balance of trade which had been favorable in 1924 and 1925. The leading imports were cereals, colonial produce and spices and metals; the leading exports, timber, pulp and paper, and food obtained from animals.

Finance. Closed accounts of the state budget for 1926, including the supplementary estimates, disclosed a balance slightly above the estimated budget. The final returns totaled 4,076,600,000 marks against the estimates of 4,017,700,000 marks. Ordinary revenues were higher by nearly 100,000,000 marks and extraordinary by nearly 9,000,000 marks. The final balance was accomplished through resort to loans and also to the treasury reserve, but the amount taken from the latter was lower by 38,000,000 marks. Ordinary expenditures were higher than the estimates by 53,000,000 marks, and extraordinary by 7,000,000 marks. The Finnish budget for 1927 as passed by the diet on Dec. 20, 1926, authorized a total expenditure of 3,779,700,000 marks and a total revenue of 3,589,200,000 marks. The budget is balanced by recourse, in the amount of 190,500,000 marks, to the cash reserve of budget surpluses returned in previous years. Anticipated revenues were higher by 440,700,000 marks than the corresponding estimates for 1926, and expenditures were increased by 366,000,000 marks. The surplus estimated from the ordinary budget is more than absorbed by the increased expenditure in the extraordinary budget.

On Dec. 1, 1926, the foreign debt totaled 2,350,300,000 marks and the internal debt amounted to 528,600,000 marks or a total of 2,878,900,000 marks ($103,100,000). The entire debt is funded. The budget expenditures in connection with debt service were greatly increased for 1927, showing a total of 505,000,000 marks against 250,400,000 in the 1926 budget. In addition to the interest payments on the various loans, the budget for 1927 carried the amount of 217,400,000 marks for payment of principal in addition to the interest on the 6½ per cent loan of 1921, which accounts for the large increase in the amount for debt service.

Communications. The preliminary report of the Finnish State Railway Administration for 1926 showed net profits amounting to 131,000,000 marks, as compared with 163,000,000 marks for 1925. The decrease is due to an increase of 83,000,000 marks in ordinary expenses. The length of the Finnish railways at the end of 1926 totaled 4561 kilometers, of which 194 kilometers represented double track. Rolling stock in operation comprised 558 locomotives (533 in 1925); 1210 passenger cars (1122 in 1925); and 18,389 freight cars (17,804 in 1925). Passengers carried numbered 21,784,300, yielding total receipts of 247,086,100 marks, as compared with 21,434,900 passengers and receipts of 240,303,000 marks in 1925. Income from freight traffic reached 509,915,200 marks as compared with 460,121,200 marks in 1925.

The mercantile marine of Finland on Jan. 1, 1926, aggregated 4865 vessels of 480,994 net registered tons, and consisted of 541 sailing vessels of 83,302 tons; 566 steam vessels of 105,307 tons; 97 motor boats and 3661 lighters. The shipping entering the ports of Finland represented 7682 vessels of 3,885,730 tons; cleared, 7318 of 3,800,825 tons.

GOVERNMENT. According to the constitutional law of July 17, 1919, Finland is a republic. Executive power is vested in a president elected for six years by the votes of the citizens and in a ministry appointed by him but responsible to the house of representatives; legislative power in a house of representatives consisting of 200 members chosen by direct and proportional election, all male and female citizens who have reached their 24th year possessing the right to vote. President of the Republic in 1927, Dr. Lauri Relander, elected Feb. 16, 1925. The Council of State as appointed Dec. 13, 1926, was as follows: Prime Minister, Vaino Tanner; Foreign Affairs, Dr. V. Voionmaa; Finance, Dr. A. Ryoma; Interior, R. Itkonen; Defense, K. Heinonen; Justice, V. Hakkila; Education, Dr. J. Ailio; Agriculture, M. Pekkala; Communications, V. Vuolijoki; Commerce and Industries, V. Hupli; Social Affairs, Dr. J. Helo; Minister without Portfolio, M. Paasivuori.

HISTORY. For the election of Finland to a position of non-permanent member of the council of the League of Nations, consult article on LEAGUE OF NATIONS. Finland enjoyed a prosperous and quiet year, no untoward incident being reported in the press.

FIRE ARMS. RESTRICTING SALES OF. See CRIME.

FIRE INSURANCE. See INSURANCE; FIRE PROTECTION.

FIRE PROTECTION. In 1927 according to the monthly record of fire losses maintained by the *Journal of Commerce*, New York, it was noted that the improvement in the burning ratio started about September, 1926, had continued almost uninterruptedly until the close of 1927. Some of the insurance company executives attributed this to the burning out of the "moral hazard" lines, the better housekeeping in industrial risks and in no small measure to the check in the premium grabbing policy of the companies themselves, which made it difficult for the unscrupulous to secure over-insurance. The three-year monthly loss table follows:

	1925	*1926*	*1927*
January	$41,210,400	$41,118,750	$37,910,600
February	32,472,000	30,963,750	26,285,000
March	33,346,500	42,854,600	26,307,600
April	37,696,800	52,408,400	39,720,000
May	29,170,800	32,764,200	20,718,000
June	23,650,800	28,676,000	25,481,200
July	29,622,000	31,728,400	24,248,600
August	23,348,750	27,833,400	24,299,800
September	25,396,250	19,309,000	21,375,000
October	23,991,250	14,377,000	22,326,600
November	30,320,000	26,724,400	18,992,200
December	43,275,000	43,757,600	31,935,400
Total	373,500,550	393,010,500	320,595,600

While the year 1927 was considered a good year by comparison with the smallest fire losses since 1919, yet property to the aggregate value of $320,595,600 was destroyed by fire. During the year there were no less than 3764 outbreaks of fire, each of which resulted in property loss of $10,000 or over.

These figures vary somewhat from those of the Committee on Statistics and Origin of Fires of the National Board of Fire Underwriters which are given herewith for a period of years.

FIRE LOSSES BY YEARS

1926......	$560,548,624	1900......	$160,929,805
1925......	559,418,184	1899......	153,597,830
1924......	549,062,124	1898......	130,593,905
1923......	535,372,782	1897......	116,354,575
1922......	506,541,001	1896......	118,737,420
1921......	495,406,012	1895......	142,110,233
1920......	447,886,677	1894......	140,006,484
1919......	320,540,399	1893......	167,544,370
1918......	353,878,876	1892......	151,516,098
1917......	289,535,050	1891......	143,764,967
1916......	258,377,952	1890......	108,993,792
1915......	172,033,200	1889......	123,046,833
1914......	221,439,350	1888......	110,885,665
1913......	203,763,550	1887......	120,283,055
1912......	206,438,900	1886......	104,924,750
1911......	217,004,575	1885......	102,818,796
1910......	214,003,300	1884......	110,008,611
1909......	188,705,150	1883......	110,149,228
1908......	217,885,850	1882......	84,505,024
1907......	215,084,709	1881......	81,280,900
1906	518,611,800	1880......	74,643,400
1905......	165,221,650	1879......	77,703,700
1904......	229,198,050	1878......	64,315,900
1903	145,302,155	1877......	68,265,800
1902	161,078,040	1876......	64,630,600
1901......	165,817,810	1875......	78,102,285
Total, 52 years			$11,017,869,796

COMPARATIVE FIRE LOSSES

[*From Report of the Committee on Statistics and Origin of Fires, National Board of Fire Underwriters*]

	Population	*Total loss*	*Per capita*
1922			
Whole country ..	109,248,893	$506,541,001 [a]	$4.63
366 cities	33,821,476	120,964,112 [b]	3.57
1923			
Whole country ..	110,663,502	535,372,782 [a]	4.84
372 cities	42,946,639	147,102,119 [b]	3.42
1924			
Whole country ..	112,078,611	549,062,124 [a]	4.90
366 cities	43,375,796	146,222,749 [b]	3.37
1925			
Whole country ..	115,378,094	559,418,184 [a]	4.85
370 cities	45,297,469	160,011,951 [b]	3.53
1926			
Whole country ..	117,136,000	560,548,624 [a]	4.79
377 cities	53,243,778	178,178,874 [b]	3.35

[a] Estimated from Records of the Actuarial Bureau.
[b] Actual figures recorded.

During 1927 there was a more general awakening of commerce and industry in the matter of reducing the enormous fire waste which occurs annually in the United States and which is indicated in the accompanying tables. The matter of fire protection in its larger aspect was being discussed largely along economic lines, and it was here that the greatest advances were made. In municipal fire departments there was a general betterment and also in fire prevention and fire inspection services for a number of cities, but the latter conditions were far from ideal, though showing an improvement over previous years. It was realized by such organizations as the National Fire Protection Association that what was needed was a campaign of education bringing home to the various interests, from important large commercial organizations to the individual householder, that increased costs of taxes and maintenance were due in no small measure to the fire problem.

This did not merely concern insurance premiums, but the fact that the reduction of taxable values in cities by the burning of buildings increased real estate taxes. Also in the case of a public utility, a conflagration or other

AMERICAN CITIES IN WHICH FIRE LOSSES EXCEEDED $5 PER CAPITA IN 1926, FROM REPORT OF THE COMMITTEE ON STATISTICS AND ORIGIN OF FIRES, NATIONAL BOARD OF FIRE UNDERWRITERS

[b] Council Bluffs, Iowa	$27.77
[a] Mobile, Ala.	20.39
San Jose, Cal.	15 24
[b] Lowell, Mass.	14 43
Danville, Va.	12 68
Taunton, Mass.	12.24
[d] Haverhill, Mass.	11.85
[b] Gloucester, Mass.	11.28
[b] Raleigh, N. C.	10.98
[b] Kokomo, Ind	10 86
[a] East Liverpool, Ohio	9 64
Kalamazoo, Mich.	9 16
[c] Peabody, Mass.	9.11
Easton, Pa.	8.70
[a] Davenport, Iowa	8 14
Spartansburg, S. C.	7.96
[c] Chelsea, Mass.	7.89
[b] Lancaster, Pa.	7.73
[d] Dallas, Texas	7.60
[b] South Bend, Ind.	7.59
[c] Springfield, Ill.	7.50
[a] Paterson, N. J.	7.45
[d] Charlotte, N. C.	7.39
[a] East St. Louis, Ill.	7.26
[a] Passaic, N. J.	6.86
[c] Nashville, Tenn.	$6 83
[a] Macon, Ga	6 67
[b] New London, Conn.	6 63
[c] Boston, Mass.	6 59
[b] Marion, Ind.	6.34
Wilkes Barre, Pa.	6.30
[b] Meridian, Miss	6 29
Dayton, Ohio	6 29
[a] Revere, Mass	6.26
Reading, Pa.	6 26
[b] Bellingham, Wash.	5.99
[a] Montgomery, Ala.	5 73
[a] Muskegon, Mich.	5.72
[a] Newark, N. J.	5.67
[d] Alton, Ill.	5 63
[b] Everett, Mass.	5 57
[a] Shamokin, Pa.	5 54
[b] Duluth, Minn.	5 41
[b] Cambridge, Mass.	5 38
[b] Danville, Ill.	5.37
[b] Lexington, Ky.	5 35
Mason City, Iowa	5 30
[b] Leominster, Mass.	5.23
[d] Shreveport, La.	5 15
Nanticoke, Pa.	5.01

[a] These cities in this class in two of the five years.
[b] In this class three of the five years.
[c] In this class four of the five years.
[d] In this class five years.

STATISTICS OF FIRES IN LARGER AMERICAN CITIES—1926, FROM REPORT OF THE COMMITTEE ON STATISTICS AND ORIGIN OF FIRES, NATIONAL BOARD OF FIRE UNDERWRITERS

City	*Area sq. miles*	*Population*	*Number of alarms*	*Number of fires*	*Confined to building or place of origin*	*Total loss*	*Number of fires per 1,000 population*	*Loss per capita*
New York	314.75	5,924,139	30,610	25,185	24,768	$21,671,755	4.25	$3.66
Chicago	204 60	3,065,000	27,783	18,557	17,717	14,894,135	6 05	4 86
Philadelphia	129.71	1,900,000	8,976	7,098	7,073	5,572,467	3.74	2.93
Detroit	173 00	1,290,000	11,329	9,000	..	3,519,549	6.98	2.73
Los Angeles	440.20	1,200,000	7,247	6,519	6,372	2,120,343	5.43	1.77
Cleveland	69.15	936,000	5,855	4,931	. ..	2,297,462	5.27	2 46
Baltimore	78.58	808,000	4,995	4,856	4,841	2,478,557	6.01	3.07
St. Louis	61.37	800,000	6,873	6,272	5,921	2,474,435	7 84	3.09
Boston	47 81	793,000	7,870	6,310	6,229	5,231,452	7.96	6.59
San Francisco	42.50	700,000	6,093	5,384	5,215	... .	7.69	...
Pittsburgh	46.94	687,000	3,935	3,415	3,369	2,148,452	5 36	3.37
Milwaukee	32.66	569,000	3,306	2,801	2,788	1,500,000	4.92	2 64
Buffalo	42 00	538,000	2,472	1,887	1,875	. . ...	3.51	3.84
Minneapolis	53.29	491,000	4,815	4,590	4,551	1,522,290	9 35	3.10
Newark	23.40	459,000	3,622	3,042	3,003	2,603,469	6 63	5.67
Kansas City, Mo.	60.00	456,000	4,603	3,806	3,761	1,884,789	8 35	4.13
Cincinnati	71.25	443,000	2,308	2,003	....	1,400,506	4.52	3.16

large fire removed a large number of customers. Accordingly, the most important campaign in progress in the field of fire protection in 1927 was the sending of expert fire engineers to various cities to study the fire hazard and bring it to the attention of local authorities and business interests.

There were numerous cities in the United States where various business blocks furnished a potential hazard which might develop into a devastating fire and practically wipe out the commercial section of the city. The fire engineers would chart these areas of danger, would suggest to the municipal authorities the need of restrictions, and to the owners or to the town commercial organization, the necessity of immediate protection in the form of automatic sprinklers, additional fire walls, and the protection of window openings. In some cases local chambers of commerce paid for the expenses of these surveys and they adopted measures leading to the demolition of abandoned fire traps and the protection of risks that could not be immediately eliminated by adequate extinguishing systems and fire barriers. In these surveys stress was laid upon proper housekeeping and cleanliness secured by use of local fire departments for inspection service and the development of improved civic responsibilities.

From 1924 to 1927 the engineers of the National Fire Protection Association visited more than 80 cities and in a large number of cases the fire losses have been materially reduced.

FIRES, FOREST. See FORESTRY.

FISHER, SYDNEY GEORGE. American lawyer and historian, died at Essington, Pa., February 22. He was born at Philadelphia, Pa., Sept. 11, 1856, and graduated at Trinity College in 1879. He then studied law for two years at Harvard, and was admitted to the bar at Philadelphia in 1883. The Western University of Pennsylvania conferred on him the degree of L.H.D. in 1902, and he was made a Doctor of Laws by Trinity in 1902 and by the University of Pennsylvania in 1914. He devoted much of his time to writing on historical and civic subjects. His letter to the *Nation* (New York), July 30, 1880, began the movement which established the civil service reform societies throughout the United States. Among his books are: *The Making of Pennsylvania* (1896); *Pennsylvania, Colony and Commonwealth* (1897); *The Evolution of the Constitution of the United States* (1897); *Men, Women and Manners in Colonial Times* (2 vols., 1898); *The True Benjamin Franklin* (1899); *The True William Penn* (1900); *The True History of the Revolutionary War* (1902); *The Struggle for American Independence* (1908);

The True Daniel Webster (1911); *American Education* (1917); *The Quaker Colonies* (1918). He wrote many articles on field sports and other subjects of natural history and outdoor life.

FISHES. See ZOÖLOGY.

FISK, WILLARD CLINTON. American lawyer and soldier, died at Jersey City, N. J., June 16. He was born in New York City, Mar. 26, 1856, and was educated at Hasbrouck Institute, New York University, and the Columbia Law School. He was admitted to the New Jersey bar and was in practice in Jersey City for the greater part of his life. He was private secretary to Governor Leon Abbett, 1884–87, and later was a member of the New Jersey Riparian Commission. Joining the Seventh Regiment of the New York National Guard in 1874, he served through all ranks and grades, being commissioned colonel in April, 1916, and commanding the regiment in active service on the Mexican frontier. When the old Seventh Regiment became the 107th U. S. Infantry in the World War, he went to France as its commander, but ill health, due to labors and exposure, compelled him to return with an honorable discharge from the service.

FISK UNIVERSITY. A coeducational institution for colored people at Nashville, Tenn.; founded in 1866. It consists of a college, a music department, and a graduate department. The total enrollment of 561 for the autumn of 1927–28 included 260 men and 301 women. Enrollment in the music department was 110. The faculty numbered 40 and there were 20 administrative officers and assistants. The library contained approximately 21,750 volumes. The productive funds for 1927–28 amounted to $1,286,164.58, and the income to $328,677.02. Thomas Elsa Jones, Ph.D., was president; Ambrose Caliver, M.A., dean; and Paul W. Gordon, treasurer.

FITZPATRICK, FREDERICK F. American manufacturer, president of the American Locomotive Company, died at Larchmont, N. Y., November 16. He was born near Peterborough, Ont., June 9, 1866, and after studying at St. Joseph's Academy at Chillicothe, Mo., entered railroad service as a telegraph operator. He was promoted through various grades to that of assistant to the manager of the Missouri Pacific in 1898. He became St. Louis representative of the Charles Scott Spring Company, which was merged with the Railway Steel Spring Company in 1902. In 1905 he was made general sales agent, with headquarters at New York, and in 1907 was elected vice president in charge of sales. In 1910 he was elected president, and continued in charge of the affairs of the company until 1926, when he was made chairman of the board and succeeded William H. Woodin as president of the American Locomotive Company after the Railway Steel Spring Company had been amalgamated with that organization. He was active in railway manufacturing interests, being at the time of his death president of the Montreal Locomotive Works, Ltd., the Canadian Steel Tire and Wheel Company, the American Locomotive Sales Corporation, and the Richmond Locomotive Works, a subsidiary of the American Locomotive Company. He was also a director of the American Brake Shoe and Foundry Company, the American Car and Foundry Company, the American Car and Foundry Securities Company, the Safety Car Heating and Lighting Company, the Super-Heater Company, and several saving banks and insurance companies. At the time of his death he was vice president of the Railway Business Association.

FIUME, fyōō′me. A small state consisting of a single city, whose independence was acknowledged by the Treaty of Rapallo between Italy and Jugo-Slavia, Nov. 12, 1920. After a brief and tempestuous career it was turned over to Italy by a subsequent treaty with Jugo-Slavia, Jan. 27, 1924. Area, about eight square miles; population at the census of 1921, 84,686.

FIXED NITROGEN PRODUCTS. See FERTILIZERS.

FLAG, AMERICAN. See CELEBRATIONS.

FLAG DAY. See CELEBRATIONS.

FLAX. The flaxseed production of thirteen reporting countries for 1927 was estimated by the International Institute of Agriculture, Rome, as 9.8 per cent above their yield in 1926 and 9.1 per cent above their average production for the five years 1921–1925. The yield of these countries, including the United States, was estimated at 51,667,000 bushels in 1927 and at 47,069,000 bushels in 1926. The yields in 1927 of the more important producing countries furnishing data were estimated as follows: Lithuania 1,561,000 bushels, Poland 2,716,000 bushels, Canada 4,735,000 bushels, and India 16,280,000 bushels. The United Socialist Soviet Republics, the leading flaxseed producing country of the world, recorded a yield of 780,038,000 bushels in 1926. Argentina produced 69,092,000 bushels and Uruguay 1,970,000 bushels in the crop year 1926–27. For the crop of 1927–28 Argentina increased its area, 5.7 per cent over that of the year before and 35 per cent over the average area for the five years 1921–1925.

Estimates published by the Department of Agriculture placed the flaxseed production of the United States for 1927 at 26,583,000 bushels, or 7,248,000 bushels above the production of 1926. In both years 2,907,000 acres were devoted to the crop but the average yield per acre in 1926 was only 6.7 bushels while in 1927 it was 9.1 bushels. The average farm price on Dec. 1, 1927, was $1.857 per bushel and on this basis the total value of the crop was $49,373,000 while the corresponding price the year before was $1.94 per bushel and the total crop value $37,510,000. Of the production in 1927 of the nine States reporting 97 per cent was produced in four States of which the yields were as follows: North Dakota 10,184,000 bushels, Minnesota 7,343,000 bushels, South Dakota 5,940,000 bushels, and Montana 2,438,000 bushels. The average yields per acre were 8.2, 9.7, 10, and 10.2 bushels respectively. During the calendar year 1926 the United States imported 15,041,000 pounds of linseed oil and 22,500,000 bushels of flaxseed to meet the linseed oil requirements. Exports of flaxseed products for the year ended June 30, 1927, consisted of 609,520,000 pounds of linseed cake, 15,601,000 pounds of linseed meal, and 2,738,000 pounds of linseed oil.

The estimates of flax fibre production in 1927 reported to the International Institute of Agriculture, Rome, by some of the leading fibre producing countries were as follows: Poland 125,443,000 pounds, Belgium 116,167,000 pounds, Lithuania 85,407,000 pounds, France 48,579,000 pounds, Latvia 42,636,000 pounds, and Czechoslovakia 28,234,000 pounds. The North of Ireland in 1926 produced 13,498,000 pounds and the Irish Free State 2,567,000 pounds. The United

Socialist Soviet Republics, which produce over half of the world's supply of flax fibre, yielded 780,038,000 pounds in 1926. The United States imported 5000 tons of manufactured flax fibre during the fiscal year ended June 30, 1927. Flax in the United States was grown principally for its seed as a source of oil for painting and the manufacture of linoleum, imitation leather, soap and other substances, while flax straw was utilized only to a limited extent in the manufacture of commodities and was largely a waste product; but efforts were being made to extend its use to making binder twine, insulating material, fibre board, paper, rope, etc.

FLEA HOPPER. See Cotton.

FLEMING, John Donaldson. Dean of the University of Colorado Law School, died at Denver, Colo., August 8. He was born in Elizaville, Ky., Sept. 16, 1851, and graduated from Centre College, Danville, Ky., in 1875, graduating in law at the University of Louisville in 1879, and taking a special course in law at the University of Virginia. He began the practice of law at Leadville, Colo., in 1879, and from 1880 to 1882 was financial manager of the Robert E. Lee Mining Company. He was elected mayor of Leadville for the term of 1882–83, and served as city solicitor, 1885–86. From 1889 to 1893 he was United States district attorney for Colorado by appointment of President Harrison, and in the latter year resumed private practice in Denver, Colo. In 1903 he became dean of the law school of the University of Colorado, and in 1913 became also Thompson professor of law, holding both positions at the time of his death. Centre College conferred on him the degree of LL.D. in 1910. He specialized in laws concerning irrigation, water rights, mines and mining.

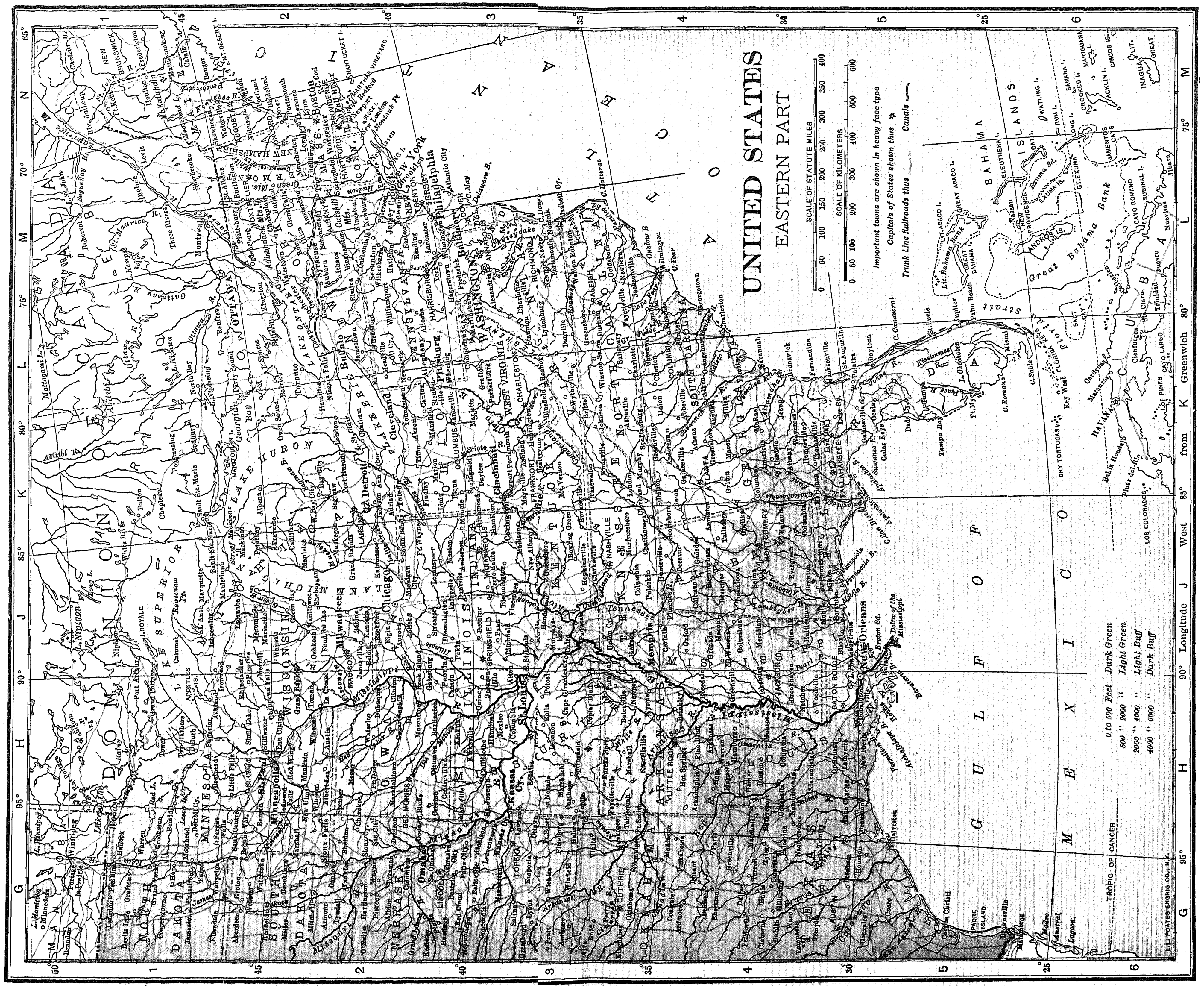
FLEMMING, James Kidd. Former Premier of New Brunswick, died at Woodstock, N. B., February 10. He was born in Woodstock, Apr. 27, 1868, of Irish parentage, and was educated at the common schools and the provincial normal school. After teaching school for two years, he entered upon commercial life, becoming a lumber manufacturer and merchant. He was an unsuccessful candidate for the New Brunswick legislature in 1895 and in 1899, but in 1900, standing as a Liberal-Conservative, he was successful, and was reëlected in 1903, 1908 and 1912. He served as provincial secretary and receiver general in the Hazen administration, 1908–11, and in the latter year became premier of New Brunswick, serving until 1916. He was at the same time minister of lands and mines. In the general election of 1912 he secured 46 out of the 48 members. He received the honorary degree of LL.D. from New Brunswick University in 1913. He was president and manager of Flemming & Gibson, Ltd., engaged in the lumbering business. His name figured in the Maine senatorial contest of 1926, when it was charged that Senator Arthur R. Gould, the Republican candidate, had offered a bribe of $100,000 in connection with a railroad contract in 1913, when Mr. Flemming was premier. This charge was denied by both Senator Gould and Mr. Flemming.

FLERS, flâr, **Robert de la Motte-Ango, Marquis de.** French dramatist, essayist and critic, and member of the French Academy, died at Vittel, France, July 30. He was born at Pont l'Evêque, Nov. 25, 1872, a grandson of Eugène de Rozière, who had been a member of the Institute and a senator, and a great-grandson of Charles Giraud, also a member of the Institute and a minister of public instruction. He was educated at the Lycée Condorcet, and, taking degrees in law and in letters, became a dramatic critic for *Liberté, Figaro,* and other papers, being literary editor of *Figaro* for several years. His work, *Vers l'Orient,* was crowned by the French Academy, and his other essays included: *Entre Coeur et Chair; Essais de Critique; Ilsée, Princesse de Tripoli; Histoire de la Courtisane Taia et de son Singe Vert;* and *La Petite Table.* His plays written in collaboration with G. A. de Caillavet included: *Le Coeur a ses Raisons; Les Sentiers de la Vertu; L'Ange du Foyer; Miquette et sa Mère; La Chance du Mari; La Montausier; L'Amour Veille; L'Eventail.* With Emmanuel Arène he wrote *Le Roi,* the king referred to being Edward VII of Great Britain; *Le Bois Sacré; L'Ane de Buridan; Papa; Primerose; L'Habit Vert;* and *Venise.* With Etienne Rey he wrote *La Belle Aventure* and *Monsieur Bretonneau.* In collaboration with G. A. de Caillavet he wrote: *Les Travaux d'Hercule; Chonchette; Le Sire de Vergy; Monsieur de la Palisse;* and *Pâris ou le Bon Juge,* the music being written by Claude Terrasse. He also wrote, with Caillavet, the opéras comiques *Fortinio* and *Béatrice,* with music by A. Messager. In collaboration with F. de Croisset he wrote *Le Retour* and *Les Vignes du Seigneur.* He married the daughter of Victorien Sardou, the playwright. Flers was elected in 1920 a member of the French Academy, from which his *Primerose* and *L'Amour Veille* received the Toirac prize. He was made an officer of the Legion of Honor in 1913, and, serving during the World War, received the Croix de Guerre with four citations, and the Grand Cross of the Crown of Rumania. He was the president of the International Confederation of Authors' and Composers' Associations, which met in Rome to examine copyright laws, with the purpose of standardizing them.

FLOODS. The disastrous floods of 1927 over the central and southern parts of the Mississippi basin assumed the proportions of a national calamity, the depressing effects of which were destined to be felt for many years. All previous records for Mississippi floods were broken; the great flood of 1922 now takes second place, while that of 1882 stands third.

The lower Mississippi River normally begins to rise about the first of each calendar year; the increasing flow either passes off harmlessly or else culminates in a flood, according to circumstances. All the great floods of the Mississippi have occurred when a flood in the Ohio River has been augmented by subsequent heavy rains, coming in time and distributed over the central and lower valleys of the Mississippi basin; the inflow from the distant Rocky Mountain headwaters of the great drainage system is unimportant, and the influence of melted snow likewise seems to be negligible.

The flood of 1927 really began during the second week in August, 1926, when general rains set in over the region extending from eastern Kansas and eastern Oklahoma east-northeastward throughout the Ohio valley. By the end of August the soil over this extensive area was well saturated; and the continuance of heavy rains through September and early October resulted in floods over much of the territory, those in the Neosho Valley of Kansas and in



UNITED STATES
EASTERN PART
SCALE OF STATUTE MILES
0 50 100 150 200 250 300 350 400
SCALE OF KILOMETERS
0 50 100 200 300 400 500 600
Important towns are shown in heavy face type
Capitals of States shown thus ✱
Trunk Line Railroads thus
Canals
0 to 500 Feet Dark Green
500 " 2000 " Light Green
2000 " 4000 " Light Buff
4000 " 6000 " Dark Buff
TROPIC OF CANCER
GULF OF MEXICO
ATLANTIC OCEAN
90° Longitude West from Greenwich
L.L. POATES ENG'RG CO., N.Y.

the lower Illinois Valley being the greatest on record; the Ohio River did not go into flood, but reached high stages.

During October and November, 1926 (normally the months of lowest water in the rivers) nearly all the main and tributary streams below the mouths of the Platte and the Des Moines were high above the normal stages for the season. With the rivers still high, a period of excessive rains set in about December 15 over the Ohio Valley and the tributary basin to the south; the December rains were especially heavy over Kentucky and Tennessee, and resulted in a record flood in the Cumberland River, a great flood in the Tennessee River, and large rises in the Green and the Ohio.

Moderate to heavy rains the latter half of January, 1927, over the Ohio Valley started a flood wave in the Ohio which continued downriver to New Orleans, reaching that place in 38 days; this was the first of a series of flood waves that passed down the river during the period from January to June, 1927, due to heavy rains in the middle drainage area. The Mississippi River went into flood in February; while the Ohio, Yazoo, Ouachita, and Red Rivers remained at high stages during January and February.

Heavy rains in March over the Missouri, Mississippi, and Ohio basins, together with moderate rains over the basins of the Arkansas and the Red, caused a general rise of the Mississippi below the mouth of the Missouri, and sent the Ohio into flood again below the mouth of Green River. April showed a general excess of rainfall over the entire drainage area of the Mississippi, especially over the Missouri basin. As a result of the March and April rains, a catastrophic flood occurred in the lower Mississippi Valley; the Missouri and Ohio rose; the Green, Wabash, St. Francis, Black, White, Ouachita, and lower Red went into flood; and the Arkansas had the greatest flood since 1833.

The occurrence of great crevasses in the levees in Arkansas, Mississippi, and Louisiana prevented the lower Mississippi River from attaining the stages that would otherwise have been reached; and on April 25, the rise at New Orleans was halted by dynamiting the levee at Cacrnarvon, fourteen miles below the city.

During May, June, and July there was a very slow general recession; but heavy rains caused supplementary rises in May and again in June, which resulted in flood stages again being attained at many places, and a great deal of crop land that had been planted was reinundated. At Baton Rouge, La., the river did not fall below flood stage until July 14; and the last overflow water did not pass into the Gulf of Mexico until after Aug. 1, 1927.

The total area of lands overflowed was estimated by officials of the U. S. Weather Bureau to have been 28,573 square miles, of which about one-fourth was crop land; 214 lives were lost in the lower Mississippi basin, and (in May) 94 in the mountain districts of Kentucky, Virginia, and North Carolina. It is difficult to determine the monetary loss, but careful estimates place it as $284,117,631 (exclusive of most railroad losses), though this was almost certainly 25 per cent short of the actual.

The progress of the several flood waves was accurately forecast by the Weather Bureau, and warnings were issued one to two weeks or more in advance. The most original service was furnished when the necessity arose of forecasting the depth of the wave of crevasse water that passed overland through the Atchafalaya Basin to the Gulf; timely warnings were given of the flooding of parts of the Atchafalaya Basin that never before in the 200 years since the settlement of the region had been reached by flood waters. The Weather Bureau warnings were the means of saving many lives, and over $30,000,000 worth of property, besides aiding greatly in the relief work, and were warmly commended by many individuals, corporations, and other organizations.

NEW ENGLAND AND EASTERN NEW YORK FLOODS. During the night of November 2, meteorological conditions suitable for the occurrence of heavy precipitation began to form over the northeastern United States, and by the evening of November 3 torrential rains had fallen over eastern New York and western New England. Heavy rains continued during the night of November 3 over the Hudson valley and Western New England; and as they moved on to Maine, Quebec, and Western New Brunswick, light rain continued to the west and south. As an inevitable consequence, disastrous floods occurred in the Hudson Valley, virtually all of Vermont, New Hampshire, Massachusetts, and western Connecticut; and lesser floods were experienced in Western Maine, Eastern Connecticut, and Rhode Island. The flood was most severe in the Winooski valley of Vermont, where the loss of life and destruction of property were so vast as to mark the disaster as the greatest in the history of the valley.

So heavy was the rain that the floods reached destructive proportions some hours before the rains had ceased; and most unfortunately they occurred during the night over much of the region. A remarkable feature was the rapidity with which the rivers rose; there was no time for preparation except in the lower Connecticut valley, and in many places there was no time for escape. Considering the comparatively small area, the loss of life and of property in the floods was staggering.

In the drainage basins of the Winooski and Connecticut Rivers, the foundation for the flood was laid by moderately heavy rains in October which saturated the soil and filled the streams; after the heavy November rains, the waters rose to unprecedented heights. About 90 per cent of the drainage basin of the Winooski and its tributaries (comprising about 1000 square miles) is within the hills, mountains, and valleys where eight or more inches of rain fell on November 3 to 4; the length of the river proper is about 60 miles, and the discharge at the mouth reached about 100,000 second-feet. About eight feet of water covered the entire business district of Montpelier, Vt. Further damages resulted from subsequent rises after heavy rains, on November 17 and December 1.

At White River Junction, Vt., the Connecticut River rose nearly 30 feet in 24 hours. On the Androscoggin River, the flood was the highest known at many points. The runoff in the Hudson valley from the eastern tributaries was unprecedented; the U. S. Geological Survey reported a discharge of 29,700 second-feet for the Hoosic River near Eagle Bridge, N. Y., a runoff of 58 second-feet per square mile; for Poestenkill Creek, near Troy, N. Y., the discharge was 7150 second-feet, a runoff of 81.3 second-feet per square mile.

According to the best information available, 88 lives were lost, of which 63 were in Vermont; of the latter, 48 occurred in the Winooski valley, Waterbury alone having 21. The property losses exceeded $32,600,000, in addition to heavy railroad losses. Traffic was not restored on the Central Vermont R. R. until the following February.

Bibliography. H. C. Frankenfield, *et al.* "The Floods of 1927 in the Mississippi Basin," *Monthly Weather Review, Supplement 29* (Washington). See also Roads and Pavements; Agriculture.

FLORIDA. Population. A State census was taken in 1925. The result showed a total population of 1,263,549, compared with 968,470 by the Fourteenth United States census of 1920, an increase of 295,079 in the five-year period. The estimated population of the State on July 1, 1927, was 1,363,000. The capital is Tallahassee.

Agriculture. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	573,000	7,449,000	$7,226,000
	1926	551,000	7,714,000	7,097,000
Potatoes	1927	29,000	3,045,000	5,633,000
	1926	24,000	2,832,000	8,496,000
Sweet potatoes	1927	29,000	2,668,000	2,268,000
	1926	28,000	2,800,000	3,500,000
Cotton	1927	66,000	17,000[a]	1,624,000
	1926	105,000	32,000[a]	1,632,000
Tobacco	1927	8,800	8,228,000[b]	2,880,000
	1926	6,000	5,808,000[b]	2,195,000
Peanuts	1927	44,000	28,160,000[b]	1,042,000
	1926	39,000	26,520,000[b]	1,193,000
Hay	1927	99,000	67,000[c]	1,209,000
	1926	86,000	61,000[c]	1,322,000

[a] bales, [b] pounds, [c] tons.

Mineral Production. The production of phosphate rock yielded in 1925, the latest year of available statistics, more than half of the total value of the State's mineral product, and in the production of this substance Florida maintained the lead among the States. Production was, in quantity, 2,920,964 long tons in 1925 and in 1924, 2,432,581 short tons; in value, $8,789,070 in 1925 and in 1924, $8,017,476. Stone was produced in the amount of 4,026,790 short tons in 1925 and of 2,973,360 short tons in 1924; in value, $4,687,107 in 1925 and in 1924 of $2,942,778. Fuller's earth and sand and gravel were produced in 1925 in value totals in each case in excess of $1,000,000. The mineral production of the State totaled, for 1925, $16,650,659; for 1924, $13,120,295.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $10,151,395; their rate per capita was $7.87. They included $810,947 apportioned for education. Totals not included above, of $634,617 for interest payments and of $9,283,932 for permanent improvement outlays, brought the aggregate of State expenditure to $20,069,944. Of this $310,130 was paid by State government agencies to other State government agencies for services rendered; and $8,318,230 was for highways; for maintenance, $1,014,591 and $7,303,639 for construction. Revenue receipts were $28,687,860; or per capita, $22.24. Of their total, property and special taxes yielded 31.6 per cent, attaining a per capita rate of $7.03. Earnings of departments and compensations paid the State for officials' services supplied 7.1 per cent of revenue; 52.1 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a tax on sales of gasoline. Net State indebtedness on June 30, 1926, was $90,575, or $0.07 per capita. Property subject to ad valorem taxation had a total valuation of $620,902,028. State taxes levied were $6,545,894, or $5.07 per capita.

Transportation. The total of miles of railroad line in the State on Jan. 1, 1927, was 5533.16. There were built in 1927, according to the *Railway Age*, 124.48 miles of first track and 6.30 miles of second track.

Education. The creation by the Legislature (see *Legislation*, below) of a considerable educational equalization fund made the State a prospective substantial participant in the support of public schools within its territory. The school population of the State as estimated in 1927 was 450,000, approximately. There were enrolled in the public schools, in the scholastic year 1926–27, 369,732 pupils. Of these 38,280 were in high schools. Expenditures for public school education totaled $37,754,888. Salaries of teachers averaged $120 a month.

Charities and Corrections. Institutions of the State devoted to the care or custody of individuals included a State hospital, prison farm, industrial school for boys, industrial school for girls, farm colony for the feeble minded and epileptic, and school for the deaf and blind. The number of patients in the State hospital for mental disease on Jan. 1, 1927, according to statistics of the U. S. Department of Commerce, was 2585; the number admitted to the hospital for the first time for treatment, in the course of 1926, was 1024.

Legislation. The State legislature, which convened in April, enacted a law designed to rearrange the financial structure of the Everglades Reclamation District and to provide means for completing the drainage of the Everglades. The issue of $20,000,000 bonds of this district, in addition to bonds already issued, was authorized. The State Internal Improvement Fund, recruited from the sale of State land in the Everglades, was devoted to the service of the indebtedness of the reclamation district, and buying in the Everglades lands sold for taxes. Additional legislation was pledged, as obligatory under the statute, if such legislation should become necessary to assure bondholders of the security of the district's debt. It was provided that the Internal Improvement Fund trustees might, when buying in lands for taxes, employ any funds to be appropriated for that purpose, but the statute did not make any actual appropriation to meet such a contingency, or to meet debt service on the bonds in the case that the resources of the fund should at any time become insufficient. A bill to prohibit the teaching of the theory of evolution in any school, college or university of the State was presented in the Legislature; the president and faculty of Rollins College presented a petition against the bill. It later failed of passage. Provision was made for State aid to the common and higher schools, out of revenue derived from ad valorem taxation, gasoline taxes, and interest on State funds on deposit.

Political and Other Events. The extension of the Seaboard Air Line railroad system from Palm Beach to Miami, a distance of some 70

Keystone View Co, Inc.

RAILROAD BRIDGE OVER CONNECTICUT RIVER AT BELLOWS FALLS, VERMONT, ANCHORED BY LOADED COAL CARS DURING THE GREAT FLOOD

P. & A. Photos

THE GAP IN THE LEVEE AT POYDRAS, LOUISIANA
BLASTED BY DYNAMITE, THIS GAP WAS FORMED IN THE LEVEE FOURTEEN MILES BELOW THE CITY OF NEW ORLEANS

FLOODS OF 1927

miles, was formally opened January 8 and the West Coast extension to Naples was opened shortly after. Economic conditions in the State were on the whole much less troubled than in 1926, immediately after the halt in speculative land development, but in March several banks in the Palm Beach area suspended, owing to difficulty in realizing on resources. Oil speculation occurred in the Spring near Palm Beach, but drilling did not yield important evidences of petroleum. The State Supreme Court decided adversely to the practice of the pari-mutuel betting system at horse races and dog races in Florida, in a decree of March 9. In an attempt to seize and lynch a man arrested for murder a mob at Tampa fought with sheriff, police and militia for several hours on the night of May 30, there being one killed in the affray and 18 wounded.

OFFICERS. Governor, John W. Martin; Secretary of State, H. Clay Crawford; Treasurer, J. C. Luning; Attorney-General, Fred H. Davis; Comptroller, Ernest Amos; Superintendent of Public Instruction, W. S. Cawthon; Commissioner of Agriculture, Nathan Mayo.

JUDICIARY. Supreme Court: W. H. Ellis, Chief Justice; Associate Justices, James B. Whitfield, Armstead Brown, Glenn Terrell, Rivers H. Buford, L. W. Strum.

FLORIDA, UNIVERSITY OF. A State institution of higher education at Gainesville, Fla.; founded in 1905. In the autumn of 1927 there was an enrollment of 2001 men, distributed as follows: agriculture, 127; arts and sciences, 603; engineering and architecture, 296; law, 248; pharmacy, 65; teachers, 259; business administration, 355; graduate school, 58. There were 1228 enrolled in the summer session. The faculty numbered 150, not including student assistants and research men. In 1927 the financial condition was as follows: maintenance fund, $762,321; annual endowment, $10,000; value of grounds and buildings, $4,290,000. The library contained 52,500 volumes. The president, Albert Alexander Murphree, LL.D., died suddenly on December 20.

FLOTATION. See METALLURGY.

FLYING, FLYING BOATS, ETC. See AËRONAUTICS.

FLYNN, EDMUND JAMES. Canadian jurist and former premier of Quebec, died at Montreal June 7. He was born in Percé County, Gaspé, Quebec, Nov. 16, 1847, and was educated at Quebec Seminary and Laval University. He was admitted to the bar in 1873 and was made queen's counsel in 1887. From 1878 to 1900 he was a member for Gaspé in the Quebec Legislative Assembly as a Liberal-Conservative. He represented Nicolet, 1900–04, and contested the County of Quebec in 1891, and Dorchester in 1908, for the House of Commons. He was commissioner of crown lands, 1879–82, and minister of railways and solicitor-general, 1884–87. He was minister of crown lands, 1891–96, and prime minister, 1896–97. From 1897 to 1905 he was leader of the opposition. He became professor of law at Laval University in 1874, and later dean of the law faculty. In 1914 he was appointed to the superior court of the province, and in 1920 became puisne judge of the court of appeals of the court of King's Bench. In 1878 he received the degree of LL.D. from Laval University.

FOG SIGNALS. See LIGHTHOUSES.

FOLKLORE. See PHILOLOGY, MODERN.

FOOD AND NUTRITION. FOOD PRICES. *United States.* The index number for wholesale prices of food reported by the Bureau of Labor Statistics, U. S. Department of Labor (*Mo. Labor Rev.*, vol. 24, p. 196) was 96.5 for September and 100 for October, 1927, as compared with 100.8 for October, 1926, according to the revised index number (1926 = 100). *Bradstreet's* food index number based on the wholesale prices per pound of 31 articles used for food was $3.38 for the week ended December 24, as compared with $3.35 for the preceding week, and $3.48 for the week ended Dec. 23, 1926. The Bureau of Labor Statistics logarithmic curve of retail food prices based on 43 articles of food was slightly lower throughout the year than corresponding points on the 1926 curve. The retail prices on October 15 showed an increase of 1 per cent or more over the figures of Oct. 15, 1926, in 8 of the 43 foods listed in these calculations, a decrease of 1 per cent or more in 14, and practically no change in 21. The increases were in oranges, butter, cheese, and in all of the beef cuts listed, and the principal decreases in pork products, hens, fresh and storage eggs, coffee, prunes, and bananas. The average cost of all the foods listed was nearly 2.5 per cent lower on Oct. 15, 1927, than on Oct. 5, 1926, but about 1.5 per cent higher than on Sept. 15, 1927, and more than 50 per cent higher than Oct. 15, 1913. A protest against the high cost of beef was issued by the City of Boston Hotel Association, on December 10, in the form of a resolution requesting hotel patrons not to order beef until the "price and quality return to normalcy."

Other Countries. The general trend of retail food prices throughout the world may be seen from the accompanying table compiled from data reported in the *Federal Reserve Bulletin* of December, 1927. The index numbers, which had been constructed by the various foreign statistical offices, were based on the prices of a number of articles of food weighted according to different standards, but all with one exception referable to the original pre-war basis of 100. Increases of 5 points or more are shown in Austria, Belgium, Bulgaria, and Germany; decreases in France, Italy, Norway, Russia, and India; and very little change in the remaining countries.

INDEX NUMBER OF RETAIL FOOD PRICES IN PRINCIPAL COUNTRIES

[*Pre-war = 100*]

Year and month	*Austria (Vienna)*	*Belgium* [a]	*Bulgaria*	*England* [b]	*France (Paris)*	*Germany*	*Italy (Milan)*	*Netherlands*	*Norway*
1926, Oct.	117	194	2,597	163	624	145	654	146	191
1927, Oct.	127	210	2,626	161	520	152	509 [c]	143 [c]	178

Year and month	*Russia* [b]	*Switzerland*	*United States (51 cities)*	*Canada* [b]	*Australia*	*India (Bombay)*	*New Zealand*	*South Africa*
1926, Oct.	230	160	157	147	153	158	147	120
1927, Oct.	198	158	158	148	155 [d]	148	144 [e]	119

[a] 1921 = 100.
[b] First of the month figures.
[c] September.
[d] August.
[e] July.

NUTRITION INVESTIGATIONS. *Irradiation and the Antirachitic Vitamin D.* Probably the most spectacular discovery of the year in this field was that the antirachitic properties acquired by certain inert foods on suitable exposure to ultra-violet rays are due to the activation of ergosterol, a substance which is usually present in cholesterol as an impurity in the proportion of about 1 to 2000 parts, and which, after separation from cholesterol, acquires such potency on irradiation that a dose of only 0.0001 mg. daily has sufficed for the prevention or cure of rickets in rats. A significant feature of this discovery is that it is the outcome of coöperative research carried on in three countries—by Windaus in Germany (*Chem. Ztg.*, vol. 51, p. 113), Rosenheim and Webster in England (*Biochem. Jour.*, vol. 21, p. 389), and Hess in America (*Jour. Amer. Med. Assoc.*, vol. 89, p. 337). Although irradiated ergosterol is so extremely potent, doses 10,000 times greater than what is at present regarded as an effective dose produced no ill effects in rats. Irradiated ergosterol has likewise been tested on babies. György (*Klin. Wchnschr.*, vol. 6, p. 580) reported favorable results in the treatment of 25 babies from 2½ to 14 months of age, with doses of 1 to 8 mg. daily. Beumer and Falkenheim (*Klin. Wchnschr.*, vol. 6, p. 798) reported rapid healing of rickets in children from 3½ months to 2 years of age following treatment with from 2 to 3 mg. daily.

Tisdall and Brown (*Amer. Jour. Diseases Children*, vol. 34, p. 742) found that in the latitude of Toronto the sun's rays during the hours of from 11 A.M. to 1 P.M. produced a slight but definite antirachitic effect on rats during December, January, and February, and that about the first of March there was a definite increase in this effect, continuing until in April and May the antirachitic effect of the sunshine was approximately eight times as great as in December, January, and February. The remarkable increase in activity of the sunlight in the spring months was apparently due not so much to an increase in the amount of the ultra-violet rays of the length present in sunshine in winter as to the presence of rays shorter than those found in winter. They also found (*Amer. Jour. Diseases Children*, vol. 34, p. 737) that the antirachitic effect of "sky shine" (reflected rays from the sky and clouds) is from one-half to two-thirds as great as that produced by direct sunshine, showing that some benefit results from being out of doors even in the shade. They were of the opinion that little benefit can be obtained during the winter months from sunlight through various forms of special glass claimed by manufacturers to be capable of transmitting the antirachitic rays of sunshine. In the latitude of Toronto the use of such glass is probably of value, however, during the cool days of early spring. Bundesen, Lemon, Falk, and Coade (*Jour. Amer. Med. Assoc.*, vol. 89, p. 187), from readings of calibrated photographs of the solar spectrum taken daily in Chicago from November, 1926, to May, 1927, concluded that under the most favorable conditions comparatively little ultra-violet radiation of known physiological value appears in the sun's rays during the winter months in that city.

Vitamins F and G. Studies reported from various laboratories during the year confirmed the theory that vitamin B is composed of at least two separate substances, the antineuritic vitamin and another substance thought by many to be responsible for the prevention and cure of pellagra. Since a combination of both of these factors seems to be essential for the growth-promoting function hitherto ascribed to vitamin B, Sherman (*Jour. Chem. Ed*, vol. 3, p. 1240) suggested that the name vitamin B be retained for the mixture of the two factors as existing in food materials and other plant and animal tissues, and that the antineuritic vitamin be named vitamin F and the other factor vitamin G. Other suggestions as to appropriate names were made by various workers in the field, but this would appear to be the most logical in that it follows the alphabetical sequence which has become the custom in vitamin nomenclature and, moreover, is of peculiar significance in that by coincidence the letters F and G are the initials of the investigators most closely associated with the two factors—Funk for the antineuritic and Goldberger for the pellagra-preventive vitamin.

A beginning was made in the determination of the relative amounts of vitamins F and G in various sources of vitamin B. Salmon (*Jour. Biol. Chem.*, vol. 73, p. 483) found the green leaves of velvet beans to be richer in vitamin G than F, and the same variety of velvet beans to be richer in F than G. This suggests that seeds and leaves supplement each other as sources of the vitamin B complex. Chick and Roscoe (*Biochem. Jour.*, vol. 21, p. 698) found brewers' yeast to be a rich source of both F and G and wheat embryo rich in F but deficient in G. Whole wheat was reported by Sherman and Axtmayer (*Jour. Biol. Chem.*, vol. 75, p. 207) to be relatively richer in vitamin F than in G, and skim milk richer in G than in F. Macy et al. (*Jour. Biol. Chem.*, vol. 73, pp. 188, 203) also found cow's milk to be richer in G than in F, but concluded that human milk is richer in F than in G. Sufficient evidence was at hand to indicate that many food materials hitherto considered to be more or less deficient in vitamin B were in reality comparatively rich in either vitamin F or G and require supplementing by materials rich in the other of these factors rather than in the vitamin B complex.

If, as is generally conceded, pellagra is caused by a deficiency of vitamin G, further information on the distribution of this vitamin in common food materials, and the best means of conserving it in the preparation of food for the table is of great practical importance. Burton (*Jour. Home Econ.*, vol. 20, p. 35) found that much of the vitamin B in turnip tops and collards, widely used in the South, is lost when these green vegetables are cooked in large amounts of water and the water discarded as is the custom, but that very little loss takes place when they are cooked in a small amount of water which is not discarded. As was to be expected, there was a marked increase in pellagra during the spring and summer in the area overflowed by the Mississippi River and its tributaries, and, according to Goldberger and Sydenstricker (*U. S. Pub. Health Rpts.*, vol. 42, p. 2706), an increased prevalence in 1928 was to be looked for as a result of economic conditions "unless some important mitigating factor or factors intervene." As a temporary relief measure large quantities of yeast, known to be rich in the pellagra-preventive vitamin, were sent to the flooded area.

Attempts to Alter the Composition of Milk Through Feeding. With breast milk or cow's milk as the principal food of babies and young children, the possibility of increasing its content of indispensable factors is one which is receiving considerable attention. Sure (*Jour. Biol. Chem.*, vol. 74, p. 55) found that considerably larger amounts of vitamin B are required for lactation than for growth, and that this seems to be due in part to the inability of the mother to transfer sufficient vitamin B from her food to the milk. A much smaller amount of a vitamin B concentrate was required to complete the lactation period of rats satisfactorily when some of the vitamin was given directly to the young instead of all of it to the mother. Sure suggested (*Jour. Amer. Med. Assoc.*, vol. 89, p. 675) that a large proportion of infant mortality due to gastrointestinal disturbances may be the result of vitamin B deficiency remediable by administering some source of vitamin B as a routine measure in the same manner that orange juice is now used as a protective measure for scurvy and cod-liver oil or egg yolk for rickets. Evidence has been reported by McCollum et al. working with rats (*Amer. Jour. Diseases Children*, vol. 33, p. 230) and by Welch with human subjects (*Bul. Johns Hopkins Hosp.*, vol. 40, p. 244) that cod-liver oil administered to the mother affords a slight protection to the young against rickets.

Cows stall-fed on the usual grain mixture, alfalfa hay, and silage were reported by Hughes and coworkers at the Kansas Agricultural Experiment Station (*Jour. Biol. Chem.*, vol. 71, p. 309) to furnish milk with as high a content of vitamin C as pasture-fed cows. This was thought to indicate that the vitamin C content of the ration has no effect on the vitamin C content of the milk produced, but in a similar study by MacLeod (*Jour. Amer. Med. Assoc.*, vol. 88, p. 1947) the uniform content of vitamin C throughout the year in the milk of cows stall-fed on a ration of mixed grains, alfalfa hay, corn silage, and beet pulp was attributed to the vitamin C content of the silage used.

Considerable interest was shown during the year in the demonstration at the Pennsylvania Agricultural Experiment Station that cows do not appear to require vitamin B, but are able to synthesize it in their rumen and transfer it to their milk in appreciable amounts. Previous evidence that synthesis of vitamin B in the digestive tract is a common occurrence would seem to indicate that cows and other ruminants are not unlike other species in their vitamin B requirement, but that through their peculiar digestive apparatus conditions are particularly favorable for the synthesis of vitamin B by bacteria and utilization of vitamin synthesized.

At the Wisconsin Agricultural Experiment Station, Elvehjem, Herrin, and Hart (*Jour. Biol. Chem.*, vol. 71, p. 255) found it impossible to increase the percentage of iron in cow's milk by the use of liberal amounts of easily assimilable sources of iron in the ration and concluded that "the percentage of iron in the milk seems to be an established amount for any specific animal and cannot be varied even by drastic changes in the iron content."

The Dietary Treatment of Anæmias. Continued success attended the treatment of pernicious anæmia by liver feeding as recommended during the previous year by Minot and Murphy. In a report of a continuation and extension of this treatment (*Jour. Amer. Med. Assoc.*, vol. 89, p. 759) it was announced that in a total of 105 patients treated from three months to three years with a diet furnishing about 200 gm. of liver daily there had been only three deaths, one accidental and the other two from causes other than anæmia, and that in all but six of the patients the red blood cells had been maintained at a level of 4,000,000 or more per cubic millimeter except for temporary drops always associated with partial or complete omission of the prescribed amount of liver. Minot and coworkers (*Jour. Biol. Chem.*, vol. 74, p. lxix) succeeded in separating from liver a nonprotein fraction which in doses of only a few grams has given results comparable with those obtained from 200 gm. or more of whole liver. Although the chemical nature of the active portion of the liver has not been determined, it appears probable that it is specific for pernicious anæmia in somewhat the same manner that insulin is a specific for diabetes. Just as insulin treatment must be accompanied by a carefully selected diet, so, according to Minot and Murphy, must treatment for pernicious anæmia with the liver concentrate be accompanied by a well-balanced, adequate diet. Koessler and Maurer (*Jour. Amer. Med. Assoc.*, vol. 89, p. 768) were still of the opinion that the fat-soluble vitamins are a factor of primary importance in blood regeneration. There had been a tendency to apply the liver treatment indiscriminately to all forms of anæmia, but as Brill suggested in reports of 10 cases of pernicious and four of severe secondary anæmias treated by the Minot-Murphy dietary method (*Jour. Amer. Med. Assoc.*, vol. 89, p. 1215), it was quite probable that only pernicious anæmia was benefited by this specific substance in liver.

Considerable confusion existed in the field of experimental anæmia and its dietary treatment. This was attributed by Robscheit-Robbins and Whipple (*Amer. Jour. Physiol.*, vol. 83, p. 76) chiefly to differences in the experimental conditions in the various studies reported, particularly the use of different species of animals and of different methods of producing anæmia. Their own studies of the ability of various materials and iron compounds to regenerate blood hæmoglobin in severe experimental anæmia induced in dogs by bleeding (*Amer. Jour. Physiol.*, vol. 79, pp. 260, 271, 280; vol. 80, pp. 391, 400; vol. 83, pp. 60, 76) led them to conclude that the favorable action of such materials as liver, kidney, and spleen was not attributable solely to their iron content, and that iron salts might be more or less effective, depending upon the nature of the food material with which they are fed. Rose (*Amer. Jour. Pub. Health*, vol. 17, p. 89) reported that the simple difference of an egg a day in the diet of two groups of comparable children resulted after a considerable time in improvement in hæmoglobin and red cell count and in general physical condition. Liver in amounts furnishing the same content of iron per week brought about a more rapid but less permanent increase in hæmoglobin. This difference led to the suggestion that the iron in the egg is efficiently utilized, but has no special stimulating effect over the blood-forming organs, while the liver exerts a special stimulating effect.

High Cereal Diets. The emphasis during recent years on the vitamin and mineral constituents of the diet led somewhat to the disparagement of the relatively inexpensive high calorie foodstuffs, the cereal grains, but Cowgill (*Jour. Amer. Med. Assoc.*, vol. 89, pp. 1770, 1930) showed in experiments on rats that when suitable supplementary foods were used not only whole grain cereals but certain of the milled wheat breakfast food products might be fed in amounts furnishing as much as 84 per cent of the calories of the diet with excellent growth, reproduction, lactation, and general physiological condition, and that even with 93 per cent of the diet furnished by whole grain cereals results approximating those of current normal standards are possible. The supplements first used were commercial meat residue as a supplementary source of good protein, dried cooked liver, a salt mixture, and cod-liver oil, together with 15 gm. of fresh lettuce per rat per day. Later still more simple diets were used in which the cereals were supplemented only by whole cooked egg, cane molasses, and the same amount of fresh lettuce as in the first study. Indications were obtained that in this mixture the cereal should not represent more than 65 per cent of the entire calories. This is, however, a much higher proportion than in the ordinary American diet, and corresponds more closely to the average Chinese ration. It should be noted that no milk was included in any of the diets used.

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FOOT AND MOUTH DISEASE. See VETERINARY MEDICINE.

FOOTBALL. With approximately 30,000,000 spectators and $50,000,000 in gate receipts, college football in 1927 seriously challenged professional baseball as America's national sport. A new world's record for attendance was set at Soldiers' Field, Chicago, on November 26, when 117,000 persons witnessed the gridiron clash between the teams of Notre Dame and Southern California universities. The new $2,000,000 stadium erected at the University of Michigan to seat 86,000 was filled to capacity three times during the year. There were many unusual features of the 1927 season which served to increase the general interest in football. The new rules affecting the lateral pass, muffed punts and shift and huddle plays and the placing of the goal posts ten yards back from the scoring line appeared on the whole to work satisfactorily, although it was possible that the posts eventually might be returned to their former location.

A threatened break in relations between the United States Military and Naval Academies and the barring of Bruce Caldwell, Yale star, on the eve of the Princeton game because of ineligibility afforded themes which were widely discussed wherever football fans congregated. Non-scouting agreements also came in for their meed of criticism or praise.

Opinions as to which was the most powerful eleven in the college world as usual varied widely. Each section of the country had one or more outstanding teams, although astounding "upsets" marked the season. In the East it was generally agreed that Pittsburgh, Yale, the U. S. Military Academy and Washington and Jefferson deserved top ranking. The University of Pittsburgh went through its schedule without suffering defeat, as did Washington and Jefferson, but the latter was not called upon to face such strong opponents as the former. Yale's only reverse came early in the season at the hands of the University of Georgia, whereas the U. S. Military Academy bowed to the Elis alone.

In the Middle West the top-notch elevens were Illinois, Michigan, Minnesota, Missouri, Nebraska and Notre Dame. The South produced such sterling aggregations as Georgia Technology, Georgia, Vanderbilt and Tennessee. In the Southwest appeared the Texas Aggies and Southern Methodists, while in the Far West there were Stanford, California and Southern California.

The usual crop of All-American teams was harvested at the close of the season, the players to receive the widest recognition being Welch of Pittsburgh, Cagle of the United States Military Academy, Hake and Smith of the University of Pennsylvania, Oosterbaan of Michigan, Joesting of Minnesota, Smith of Notre Dame, Raskowski of Ohio State, Drury of Southern California, Bettencourt of St. Mary's, Hunt of Texas Aggies and Mann of Southern Methodist.

A summary of the games played by the leading colleges follows:

Pittsburgh 48, Thiel 0; Pittsburgh 33, Grove City 0; Pittsburgh 40, West Virginia 0; Pittsburgh 32, Drake 0, Pittsburgh 23, Carnegie Tech. 7; Pittsburgh 52, Allegheny 0, Pittsburgh 0, Washington and Jefferson 0; Pittsburgh 21, Nebraska 13; Pittsburgh 30, Penn State 0.

Yale 41, Bowdoin 0; Yale 10, Georgia 14; Yale 19, Brown 0; Yale 10, Army 6; Yale 19, Dartmouth 0; Yale 30, Maryland 6; Yale 14, Princeton 6; Yale 14, Harvard 0.

Army 13, Boston University 0; Army 6, Detroit 0; Army 21, Marquette 0; Army 27, Davis-Elkins 6; Army 6, Yale 10; Army 34, Bucknell 0; Army 45, Franklin and Marshall 0; Army 18, Notre Dame 0; Army 13, Ursinus 0; Army 14, Navy 9.

Washington and Jefferson 14, Waynesburg 0; Washington and Jefferson 15, Western Maryland 6; Washington and Jefferson 31, Bethany 0; Washington and Jefferson 19, Carnegie Tech. 6; Washington and Jefferson 14, Lafayette 0; Washington and Jefferson 33, Thiel 0; Washington and Jefferson 0, Pittsburgh 0; Washington and Jefferson 19, Bucknell 3.

Illinois 19, Bradley 0; Illinois 58, Butler 0; Illinois 12, Iowa State 12; Illinois 7, Northwestern 6; Illinois 14, Michigan 0; Illinois 14, Iowa 0; Illinois 15, Chicago 6; Illinois 13, Ohio State 0.

Minnesota 57, North Dakota 0; Minnesota 40. Oklahoma Aggies 0; Minnesota 14, Indiana 14; Minnesota 38, Iowa 0; Minnesota 13, Wisconsin 7; Minnesota 7, Notre Dame 7; Minnesota 27, Drake 6; Minnesota 13, Michigan 7.

Notre Dame 28, Coe 7; Notre Dame 20, Detroit 0; Notre Dame 19, Navy 6; Notre Dame 19, Indiana 6; Notre Dame 26, Georgia Tech. 7; Notre Dame 7, Minnesota 7; Notre Dame 0, Army 18; Notre Dame 32, Drake 0; Notre Dame 7, Southern California 6.

Missouri 13, Kansas Aggies 6; Missouri 7, Nebraska 6; Missouri 13, Washington 0; Missouri 9, Southern Methodist 32; Missouri 34, Northwestern 19; Missouri 13, West Virginia 0; Missouri 13, Iowa State 6; Missouri 7, Kansas 14.

Georgia Tech. 7, Virginia Military Institute 0; Georgia Tech. 13, Tulane 6; Georgia Tech 13, Alabama 0; Georgia Tech. 18, North Carolina 0; Georgia Tech. 7, Notre Dame 26; Georgia Tech. 0, Vanderbilt 0; Georgia Tech. 23, Louisiana State 0; Georgia Tech. 19, Oglethorpe 7; Georgia Tech. 12, Georgia 0.

Georgia 32, Virginia 0; Georgia 14, Yale 10; Georgia 32, Furman 0; Georgia 33, Auburn 3; Georgia 31, Tulane 0; Georgia 28, Florida 0; Georgia 32, Clemson 0; Georgia 27, Mercer 7; Georgia 0, Georgia Tech. 12.

Vanderbilt 45, Chattanooga 18; Vanderbilt 39, Ouachita 10; Vanderbilt 53, Centre 6; Vanderbilt 6, Texas University 13; Vanderbilt 32, Tulane 0; Vanderbilt 34. Kentucky 6; Vanderbilt 0, Georgia Tech 0; Vanderbilt 7, Tennessee 7; Vanderbilt 39, Maryland 20; Vanderbilt 14, Alabama 7.

Tennessee 33, Carson-Newman 0; Tennessee 26, North Carolina 0; Tennessee 7, Maryville 0; Tennessee 21, Mississippi 7; Tennessee 57, Transylvania 0; Tennessee 42, Virginia 0; Tennessee 32, Sewanee 12, Tennessee 7, Vanderbilt 7.

Southern California 33, Occidental 0; Southern California 52, Santa Clara 12, Southern California 13, Oregon Aggies 12; Southern California 13, Stanford 13; Southern California 51, California Tech. 0, Southern California 13, California 0; Southern California 46, Colorado 7; Southern California 27, Washington State 0; Southern California 6, Notre Dame 7; Southern California 33, Washington 13.

Stanford 33, Fresno State 0; Stanford 0, St. Mary's 16; Stanford 20, Nevada 2; Stanford 13, Southern California 13; Stanford 20, Oregon Aggies 6; Stanford 19, Oregon 0; Stanford 13, Washington 7; Stanford 6, Santa Clara 13; Stanford 13, California 6.

California 14, Santa Clara 6; California 54, Nevada 0; California 13, St. Mary's 0; California 16, Oregon 0; California 0, Southern California 13; California 33, Montana 13; California 0, Washington 6, California 0, Stanford 13; California 27, Pennsylvania 13.

Professional football failed to make expected progress in 1927, poor weather conditions resulting in the majority of the clubs losing large amounts of money. The New York Giants won the National Professional Football League championship rather handily, the Chicago Bears being second.

FORD, Henry. See Automobiles; Jews.

FORDHAM UNIVERSITY. A Roman Catholic institution for higher education at Fordham, New York City; founded in 1841. It is the largest Catholic educational institution in America, and is under the Society of Jesus. The enrollment for 1927–28 totaled 7585 students, including 904 in the teachers' college and 385 in the graduate school, and a distribution among the other colleges as follows: law, 1504; prelaw, 570; college, 1343; business administration, 152; pharmacy, 551; social service, 299; preparatory work, 561. The registration for the summer school of 1927 was 1316. There were 200 faculty members. The endowment fund on June 30, 1927, amounted to $106,040. There were 100,000 volumes in the library. A new building was completed in September, 1927, which provided for a new biological laboratory and lecture rooms, as well as more classroom space for about 800 additional students of the college department. President, Reverend William J. Duane, S.J., Ph.D.

FOREIGN EXCHANGE. See Financial Review.

FOREIGN POLICY ASSOCIATION. See Internationalism.

FORESTRY. The age-old and universal question of the effect of deforestation on floods was brought acutely to the front by the great Mississippi floods of 1927. Forest authorities generally conceded that forests cannot be expected to prevent floods but that they can materially lessen their destructiveness by slowing down the run-off of surface water. On the upper tributaries of the Mississippi River there are vast areas of forest land which have been practically denuded by wasteful methods of cutting and subsequent fires. These areas now offer practically no resistance to the rapid movement of surface water. The United States Forest Service realizing the significance of the situation conducted a survey of the Mississippi drainage basin to determine the areas where forests or other vegetation might be expected to exert a beneficial influence on the flow of water.

Forest Legislation. The substantial and widespread progress of the forestry movement in the United States was indicated in the activities of various State legislatures. Florida, South Carolina, and Delaware provided for the establishment of State forestry departments under the guidance of trained foresters. To further the growing of timber, California, Louisiana, Minnesota, and Wisconsin amended their constitutions so as to permit changes in the manner of taxing forest land. Louisiana and Minnesota progressed even further and passed laws putting these amendments into actual operation. Modification of the forest taxation laws was proposed in other States but failed of ratification. It is now quite generally accepted that relief in taxation on growing forests will greatly encourage planting on cut-over lands. Several of the States, Pennsylvania, Washington, Minnesota, and New York, appropriated money for the purchase of State-owned forest lands. Laws in respect to forest fires were also strengthened in several States; California, for example, limited the hunting season on deer, closed certain areas to campers, and made fire building on posted areas a misdemeanor.

The National Forests. According to the Report of the Forester, United States Department of Agriculture, the net area of the national forests at the close of the fiscal year June 30, 1927, was 158,800,425 acres, a very slight net increase, 41,214 acres, during the year. Nevertheless, actual changes were much larger than indicated. Eliminations by proclamation or executive order totaled 531,263 acres and additions 743,415 acres. Transfers by acts of Congress from the national parks to the national forests, or vice versa, accounted for the balance. The cash receipts from the national forests for the fiscal year again exceeded $5,000,000; those from grazing fees showed a considerable increase, while timber sales declined. Satisfactory and noteworthy progress was made in the construction of roads and trails in the national forests, both with a view to affording facilities for recreation seekers and for aid in fire fighting and silviculture.

Forest Fires. With the statement that "never before have men been presented with such a forest fire problem as is confronted in America," W. B. Greeley, Chief Forester of the United States Forest Service, urges in his annual report that fire control be considered an important part of technical forestry, calling for special study and the development of technical methods and appliances which will facilitate control. After eight years of experience the United States Forest Service reported that aircraft had not proved as satisfactory in detecting fires as was primarily anticipated. Lookouts on towers and high points have proved much more effective, but aircraft have, however, been useful in reconnoitering large fires.

Rainy conditions in many parts of the United States in 1927 helped to reduce materially the forest fire hazard. Severe electrical storms in midsummer in California, Oregon, and Washington resulted in severe losses, but in Montana and northern Idaho, usually a region of great hazard, fire losses were practically negligible on account of abundant rains. Southern forests suffered severely from early spring fires, but, all considered, 1927 was rated as a fortunate year from the forest fire standpoint. Evidence was obtained to indicate that the widespread dissemination of knowledge on the danger and seriousness of forest fires was exerting a beneficial effect on campers and other users of the forests.

LUMBER PRODUCTION. Preliminary estimates obtained in late December from the National Lumber Manufacturers' Association of Washington, D. C., indicated a sharp decline in lumber production in 1927 as compared with 1926 and the post-war years. This situation was not unexepected, due to the slowing down in building activities, and is believed to mark a return to normal rather than to indicate any outstanding depression.

THE ALASKAN FORESTS. The United States Forest Service in its annual report announced the sale of two large Alaskan pulpwood tracts, one located near Juneau and the other near Ketchikan, containing together approximately 1,670,000,000 cubic feet and each estimated to be capable of supplying a large pulpwood plant for 50 years. Roughly estimated, there was believed to be sufficient timber in Alaska to support at least five large mills in perpetuity, and, what was even more important, there was adequate water power for these operations. The immense pulpwood resources of Alaska may be expected to offset largely the rapidly declining supply in the United States. It is estimated that probably at least five years will be required to get the mills into operation so that the shipping of pulpwood may become an actuality. Tests at the Forest Products Laboratory, Madison, Wis., showed Alaska woods to possess equal strength to those of the same species grown elsewhere.

BARK BEETLES. Sporadic but severe outbreaks of bark beetles continued to menace certain of the national forests. Control operations, which consisted of felling the trees and removing or burning the bark, were successfully employed in outbreaks in Montana and Colorado. Injury was generally most severe in trees ripe for cutting.

RESEARCH. Interest in forestry research continued to centre in the establishment and development of the regional experiment stations, nine of which have been authorized in the last few years by acts of Congress. By order of the Secretary of Agriculture the new Ohio-Mississippi Valley station was located at Columbus, Ohio, with a view to serving the timber growing interests in that great central region where the farm woodlot is often the major forestry enterprise. Logging and milling studies conducted by the Forest Products Laboratory at Madison, Wis., indicated that cutting in the northern hardwoods region of trees less than from 12 to 14 inches in diameter is frequently unprofitable. The minimum diameter returning a profit was apparently 18 inches. An astounding variation was found in the amount of waste left after logging by different companies operating in the Douglas fir regions of the Northwest, the range being from 7000 to 52,000 board feet per acre.

MISCELLANEOUS. Forestry had a part in the first International Congress of Soil Science held in Washington, D. C., June 13–22. Two subsessions were devoted to forest soil problems, with interesting papers presented by investigators from various parts of the world. Interest was so keen that it was decided to establish a permanent section of the congress for forest soils. At the invitation of the United States Chamber of Commerce a conference of representatives of wood-using industries and of forest owners was held in Chicago on November 16–17 to encourage private enterprise in the commercial growing of timber. It was quite generally accepted that timber growing is waiting largely on the remodeling of the taxation laws of most of the States. Taxes levied on the crop rather than on the land would encourage timber production and would greatly stimulate private planting. The large way in which certain States have embarked in forest seedling growing was shown in 20,000,000 trees distributed by New York in 1926 and an equal number available in Pennsylvania for 1927. The establishment of a national arboretum within the District of Columbia was authorized by Congress in the spring of 1927 and would provide for the assembly of the most complete collection of trees on the North American continent. On April 11 the new Australian Forestry School located at Canberra, the new capital of the commonwealth, was opened to students. The forestry building itself is a museum being constructed and furnished throughout with Australian timbers. Charles Lathrop Pack gave $130,000 to Cornell University for the endowment of a research professorship in forest soils. Mr. Pack had already established himself as a patron and friend of forestry by notable gifts to the Yale Forest School, the New York State College of Forestry, and the University of Washington.

NECROLOGY. George Bishop Sudworth (q.v.) Chief of the Office of Dendrology, United States Forest Service, died May 10 at the age of 62 years. Among notable contributions from his pen are, *Forest Flora of the Rocky Mountain Region* and *Check List of the Forest Trees of the United States*. Charles Sprague Sargent (q.v.), Professor of Arboriculture in Harvard University and head of the Arnold Arboretum, died March 22. Among his many works, *A Manual of the Trees of North America* stands out from the forestry viewpoint.

FORMO'SA or **TAIWAN**. An island belonging to Japan off the Chinese province of Fukien; formerly belonging to China but ceded to Japan, May 8, 1895. Area, 13,888 square miles; population, according to the census of 1920, 3,654,398; estimated in 1924 at 4,041,702. There were 183,317 Japanese and 31,273 foreigners on the island in 1923. Capital, Taihoku, with a population of 180,362 in 1922. Other large towns are Tainan, Kagi, and Taichu. In 1924 there were 131 primary schools for the instruction of Japanese, with 740 teachers and 23,785 pupils; and for the instruction of the natives there were 515 schools with 5149 teachers and 219,472 pupils.

Formosa produces in commercial quantities nearly every tropical, subtropical, and temperate zone product. The island supplies all the world's Oolong tea and produces nearly all the world's natural camphor. The sugar industry, however, is the most important. The production of raw sugar amounts to more than 1,000,000,000 pounds annually. The entire output is shipped to Japan, with the exception of that used in local consumption and an inferior grade shipped to China. The production of tea averages about 21,000,000 pounds annually, of which the United States takes about 10,000,000 pounds. The yield of rice is over 25,000,000 bushels. The indigo, hemp, pineapple, grapefruit, papaya, peanut, bean, and cereal industries are also important producers. Gold, silver, and copper are mined in considerable quantities, and coal and sulphur are exported. The exports in 1925 were valued at 47,966,437 yen and the imports at 56,489,060 yen. The revenues and expenditures have grown enormously under Japanese rule and at the present time amount to about 100,000,000 yen annually. The budget has never shown a deficit. Revenues for the fiscal year beginning Apr. 1, 1926, were estimated at 99,775,266 yen, of which the taxes provide 15,554,947 yen. Government monopolies and receipts from the railroads and from other government property total 74,952,387 yen, and miscellaneous receipts provide the remainder. The principal expenditures are for communications and transportation, for the management of the government's monopolies, for forestry, and for maintenance of various administrative bureaus. The island is under a governor-general, who is supported by a well-organized force of Japanese police. Governor-general in 1927, Mitsunoshin Yamakami.

FORT STANWIX. See CELEBRATIONS.

FORTY-EIGHT, COMMITTEE OF. A political and educational movement whose platform is the abolition of the unjust economic advantage by which a small group controls natural resources, transportation, industry, and credit. It is composed of representatives from the 48 States of the Union, from which it derives its name. The principles advocated are the public control of natural resources, public ownership of railroads, governmental banking, and equal rights for all citizens. During presidential and congressional elections, pamphleteering is carried on in order to present information relative to domestic economic issues which are subjects of controversy or contest. The Committee also assists in the formation of progressive parties in the various states. During the year 1927 the Committee gave special emphasis to its educational programme, conducted by its National Bureau of Information and Education. Membership in the committee or party is on a dues-paying basis, and the amount of the monthly payment is left to the discretion of each enrolling person. National headquarters, 15 East Fortieth Street, New York. The officers for 1927 were: J. A. H. Hopkins, chairman of the executive committee; Howard R. Williams, vice chairman; Melinda Alexander, secretary; Charles H. Ingersoll, treasurer.

FOSTER, HERBERT DARLING. American educator, died in Cornwall, England, December 28. He was born at West Newbury, Mass., June 22, 1863. After graduating at Dartmouth College in 1885, he studied at Harvard where he received the degree of M.A. He also did graduate work and conducted researches in history in several European universities, and was honored by the University of Geneva, Switzerland, with the degree of Litt.D., in 1909. He taught English and history, 1885–88, and organized and conducted the department of history of the Worcester, Mass., Academy, 1888–91. From 1893 until his death he was professor of history at Dartmouth. Professor Foster was on a sabbatical leave in England at the time of his death, which was sudden. He conducted educational work for the American Expeditionary Forces, in France and Germany, in 1919, successively as acting director of the College of Letters and Sciences, head of the department of history of the American Expeditionary Forces. at Beaune, France, and director of instruction in history. He was a fellow of the Royal Historical Society of England, and edited several works on history and the teaching of that subject.

FOX, SIR FRANCIS. British engineer, died at London, England, January 7. He was born in 1844, the son of Sir Charles Fox, and began his career as an engineer in 1861 in his father's firm, Sir Charles Fox & Sons. Later, with his elder brother, he became a member of the firm of Sir Douglas Fox and Partners, which was engaged in the execution of important engineering works, especially railways and tunnels. In 1882 he was invited to become engineer to the Manchester, Sheffield and Lincolnshire Ry., afterwards the Great Central and then merged in the London and Northeastern group. In London he was engineer in the construction of the Great Northern and City tube railway, and also of the lines from Charing Cross to Hampstead and Highgate. He was concerned with the construction of railways in Canada and in South Africa and in that of the bridge over the Zambezi at Victoria Falls. He was appointed by the Federal Government of Switzerland, on the nomination of the British government, as a member of the committee of three experts on tunneling for the construction of the Simplon Tunnel through the Alps.

In his later years. Sir Francis Fox was frequently called upon as an expert in the matter of the preservation of cathedrals and other ancient buildings, utilizing the grouting machine which had been employed with success to fill in with cement the voids outside the cast-iron segments of the London tube railways. This was used at Winchester Cathedral, 1905–12, and also at Canterbury and Lincoln, as well as in various other parts of Great Britain. In 1912 he was called upon to report upon the condition of St. Paul's Cathedral, London, and descended in diving dress, proving the existence of quicksand some 40 or 50 feet below the surface at a point near the cathedral. In 1912 he was made a knight. He was a member of the Institute of Civil Engineers. He wrote extensively, his publications including: *River, Road, and Rail; Sixty-Three Years of Engineering Science and Social Work; The Mersey Tunnel; The Simplon Tunnel; The Cape and Cairo Railway;* and *The Saving of Winchester Cathedral.* In 1919 he contributed to the *Geographical Journal* an article in which he stated that the construction of a tunnel under the English Channel presented few, if any, difficulties.

FRANCE. A republic of western Europe, lying between 42°20′ and 51°5′ N. latitude and 7°45′ and 4°45′ W. longitude. Capital, Paris.

AREA AND POPULATION. The area before the War was 207,054 square miles; total area in 1927, 212,659 square miles. The additions obtained under the Peace Treaty, and corresponding to Alsace-Lorraine under the German Empire, comprise the new departments of Bas-Rhin 1848 square miles; Haut-Rhin, 1354 square miles; and Moselle, 2403 square miles. According to the census of 1926, the population was 40,743,851, but not including the military and naval forces and the crews of merchant ships abroad. The exclusions numbered 178,534 in 1926. The population in 1921 was 39,209,518. The cities with a population of over 200,000 at the census of 1926 were as follows: Paris 2,871,-

429; Marseilles, 652,196; Lyons, 570,840; Bordeaux, 256,026; and Lille, 201,921.

According to the London *Times*, the vital statistics of France for 1926 showed in many respects a remarkable correspondence to those of England and Wales. The population of France was stated at 40,745,000; that of England and Wales in the same year was estimated at 39,067,000. In France there were 766,226 births; in England and Wales, 694,126. Marriages in France numbered 346,126; in England and Wales, 279,321. The French marriage and birth rates were respectively 17 per 1000 and 17.8 per 1000; the same rates for England and Wales were 14.3 per 1000 and 17.8 per 1000 population. France therefore had a slight advantage, both in the relative number of persons married during the year and in the relative number of births.

On the other hand the French infant death-rate compares unfavorably with that of England and Wales. There were in France, during 1926, 74,698 deaths of infants under one year of age, as against 48,503 reported deaths of infants under one year of age in England and Wales. Thus the infant death-rate per 1000 births stood in France above 80, whereas in England and Wales it was 70. These figures do not, however, do justice to the efforts which the French government was making to rescue and preserve infant life. In the year 1913 the infant death-rates of France and England and Wales were respectively 112 and 108. The disorganization caused by the War imposed a severe handicap upon the efforts of the French, and this handicap remained, to some extent. In spite of the War, in spite of the invasion of her provinces, and the inevitable dislocation of her sanitary services, she had succeeded, since 1913, in reducing her infant death-rate from 112 to 83 per 1000 population.

EDUCATION. Elementary instruction is free and compulsory between the ages of six and 13. According to the latest available statistics, those for 1924–25, there were 3736 public and private infant schools, with 366,797 enrolled pupils and 81,026 public and private primary schools with 3,827,765 enrolled pupils. Secondary education is provided by *lycées* supported by the state, colleges supported by the communes, and free schools supported by private individuals and associations. Higher education is provided by the state universities, special schools under the direction of the state, and various private schools and faculties. The accompanying tables from the *Statesman's Year Book* for 1927 show the seventeen universities of France with the date of their founding and the number of students on July 31, 1925, as well as the number of students by faculties for 1923, 1924, and 1925.

Other institutions dependent upon the ministry of public instruction include: Collège de France; Museum of Natural History (which gives instruction in the sciences); Practical School of Higher Instruction, with its seat at the Sorbonne, offering courses in history, philology, and science; École des Beaux Arts; and various others. Dependent upon the other ministries are various institutions of technical instruction, including schools of commerce, agriculture, mines, forestry, military and naval sciences, etc., and finally, there are numerous technical schools of a lower grade dependent upon the ministry of instruction.

FRENCH UNIVERSITIES

Universities	*Students*
Aix-en-Provence (1409)	1,795
Algiers	1,592
Besançon (1485)	395
Bordeaux (1441)	2,790
Caen (1432)	1,086
Clermont-Ferrand (1808)	490
Dijon (1722)	805
Grenoble (1339)	2,347
Lille (1530)	2,149
Lyon (1808)	3,476
Montpellier (1125)	2,230
Nancy (1572)	2,266
Paris (1150)	22,521
Poitiers (1431)	1,811
Rennes (1735)	1,659
Strasbourg (1567)	2,729[a]
Toulouse (1230)	2,819
Total	52,960

[a] Including 217 students in the two faculties of Theology.

Students of	*State institutions*		
	1923	*1924*	*1925*
Law	17,197	16,883	16,517
Medicine	9,218	9,551	9,791
Sciences	10,419	19,788	11,466
Letters	8,881	9,042	10,229
Pharmacy	2,035	2,287	2,500
Schools of Medicine and Pharmacy	2,400	2,127	2,186
Theology	217	213	271
Total	50,867	50,891	52,960

PRODUCTION, ETC. Crops in 1926 in most cases were poor in quality and hardly 75 per cent of the normal in yield, owing to excess moisture and pests in the spring, followed by a drought not broken until October. Compared with 1925, the yields fell short by 25 per cent in wheat and rye, almost 35 per cent in potatoes, 20 per cent in sugar beets, and 40 per cent in most fruits. Inasmuch as the French people are great bread eaters, it naturally follows that the chief grain crop is wheat. The most productive regions of wheat are those to the west and the country around Paris. In the valley of the Rhône and the region to the southwest hard wheat is cultivated for the most part. Barley is produced especially in the west, above all in the departments of Côtes-du-Nord, Eure, and Ille-et-Vilaine, and Mayenne. Rye is cultivated chiefly in Brittany; oats in the centre and northwest; corn in the departments of Landes, Basses-Pyrénées, and Haute-Garonne.

The potato is especially cultivated in the districts of the west and central regions; also in Brittany and in the departments of Corrèze, Creuse, Dordogne, Jura, and Haute-Loire, and in the Vosges. The sugar beet is cultivated especially in the north where there are sugar refineries. The chief industry related to agriculture is wine production. The wines include the ordinary wines of the Midi, wines of the central regions and of the departments of Gers and Basse-Bourgogne. Then there are the fine wines of the Bordelais and the famous wines of Burgundy. In 1926, the wheat production was 6,765,973 tons; oats, 5,775,450 tons; rye, 846,108 tons, and barley, 1,176,045 tons. In 1925 the production of wine was 1,473,042,000 gallons and of cider 217,338,000 gallons. On Jan. 1, 1926, the number of farm animals was: Horses, 2,880,380; mules, 188,320; asses, 272,970; cattle, 14,372,980; sheep and lambs, 10,537,020; pigs, 5,792,960; and goats, 1,377,910.

The chief manufactures are sugar, alcohol, and the textile industry. The latest statistics for the sugar industry show 107 sugar works, employing approximately 25,000 people and producing 750,280 metric tons of refined sugar. The production of alcohol amounted to 44,264,000 gallons. The silk production amounted to 3,368,000 kilos, valued at 63,684,000 francs.

Mineral Production. Although mining activity is conducted along a wide variety of lines, iron ore and coal far exceed other lines in importance. The production figures for 1925 unless where otherwise noted were as follows: Coal, 52,477,972 metric tons (1926); lignite, 987,000; iron ore, 35,763,000; pig iron, 9,363,000 (1926); finished iron and steel, 4,904,000; worked steel, 8,386,000 (1926); lead, zinc, silver, 30,800; copper, 118; antimony, 3200; gold ore, 57,400 tons; manganese, 3100; salt, 1,348,200; and Alsace potash products, 1,189,100. According to the U. S. Bureau of Foreign and Domestic Commerce, in 1925 the war-damaged mines of the Nord and the Pas-de-Calais regions in France had begun to produce more coal than they did in 1913. It took, therefore, only seven years for the largest coal-producing region of France to regain its former prosperity. Production continued to increase in 1926, the total output in that year being nearly 4,500,000 tons larger than that for 1925. For the whole year of 1926 the production amounted to 52,477,972 metric tons, compared with 48,033,564 in 1925. In December, 1926, alone, 4,648,069 tons of coal were produced.

The average daily production has remained high, rising from 121,064 tons in January, 1923, to 160,445 in January, 1925; 170,048 in January, 1926; and 185,922 in December, 1926. In 1913 an average daily production of 136,147 tons was recorded. In the Basin of the Nord and the Pas-de-Calais daily production during December, 1926, reached 114,920 tons, exceeding the level of 1913 by 23,622 tons. In central and southern France the daily production of 51,715 tons in December, 1926, showed an increase of 6865 tons over the 1913 figure. Consequently the mines situated within the old frontiers furnished 166,635 tons, a daily extraction exceeding the prewar production by 30,488 tons. The Lorraine mines furnished a supplementary production of 19,287 tons per working day, their 1926 output reaching 5,244,000 tons. The production of metallurgical coke by the ovens of the French collieries amounted to 343,783 tons in December, 1926, exceeding the monthly average of 1913 by nearly 100,000 tons. The total 1926 production of the coking plants attached to the mines reached 3,767,400 tons, compared with 2,267,464 in 1924, and 4,027,424 in 1913. The production of briquettes in December, 1926, amounted to 306,804 tons, and for the whole of the year it reached 4,102,370 tons compared with 3,653,702 in 1925.

The accompanying table shows the French production of coal, coke, and briquettes for 1926, compared with that for 1925 and 1913, as well as the foreign trade in these products.

FRENCH COAL PRODUCTION AND TRADE [a]

Item	*Coal and lignite Metric tons*	*Coke Metric tons*	*Briquettes Metric tons*
Production:			
1913	40,844,218	4,027,424	....
Nord and Pas-de-Calais	27,891,307	2,469,890	1,802,285
1925	48,033,564	3,064,918	3,653,702
Nord and Pas-de-Calais	28,730,224	2,174,797	2,335,585
1926	52,477,972	3,767,400	4,102,370
Nord and Pas-de-Calais	32,523,746	2,443,203	2,902,167
Imports:			
1913	18,710,935	3,070,038	....
1925	18,396,417	5,032,935	1,260,724
1926	15,402,828	5,554,955	1,118,044
Great Britain .	4,175,382	3,392	....
Belgium-Luxemburg	2,356,393	643,188	....
United States	259,219	....	....
Germany	7,643,869	4,539,955	....
Netherlands .	747,225	367,286	....
Other countries	220,740	1,134	....
Exports:			
1913	1,500,000	....	....
1925	4,731,967	473,196	148,041
1926	4,205,193	471,753	247,109

[a] Figures for 1926 are preliminary.

Forestry. The French forests have an area of more than 24,710,439 acres, or about 19 per cent of the entire country. About 17,297,308 acres belong to private interests; 4,942,088 acres to numerous communes, and 2,471,044 acres to the national government. The annual production for construction purposes is estimated at 8,500,000 cubic feet (3,604,000,000 board feet), and for firewood at 17,000,000 cubic meters. Considering the relatively small area of France, the wide diversity of trees is surprising. Among the most useful are the resinous varieties, such as the mountain spruce of the Jura and Alps, the mountain pines of Northern and Central France, the maritime pines of Southern and Southwestern France, the Aleppo pines in Provence, and the black or Austrian pine in the Champagne region and Eastern France. Among the hardwoods, oak is the most common.

Commerce. The total value of exports for the calendar year 1926 amounted to 59,535,000,000 francs and imports to 59,515,000,000 francs, thus leaving a favorable balance of trade of 20,000,000 francs. The volume of imports diminished and that of exports increased only in a relatively small proportion. Imports during 1926 totaled 45,513,430 metric tons—a decrease of 1,929,820 tons, as compared with 1925; the volume of exports aggregated 32,429,146 metric tons—an increase of 2,042,029 tons, over 1925. Raw materials imported showed the largest increase in value, reaching the sum of 40,367,875,000 francs, or 10,872,365,000 francs more than in 1925; in weight, however, they decreased 1,962,088,000 metric tons, totaling 39,092,227 metric tons in the 1926 period. On the export side manufactured articles evidenced the largest increase, their value of 37,789,424,000 francs representing an advance of 8,543,519,000 francs; they were higher in quantity as well. The principal suppliers, in order of importance, were the United States, Great Britain, Germany, Belgium and Luxembourg, and Italy. The largest buyers in order, were Great Britain, Belgium and Luxembourg, Germany, the United States, and Switzerland.

The recovery of the exchange value of the franc, favorable foreign trade returns in the last half of the year, high tourist expenditures, good tax returns, progress toward a genuine budget balance, and the return of popular confidence in the government were the outstanding plus factors in the French economic outlook at the close of the year 1926.

Imports into France during the first half of

1927 were valued at 27,118,000,000 francs and represented a decline of nearly 8 per cent from the corresponding values of 1926, while exports totaling 26,952,000,000 francs gained by 1.3 per cent. The lower value of imports was due principally to the drop in their franc values resulting from the appreciation of the currency, as the quantity of merchandise imported increased by more than 11 per cent over the similar period of 1926 and reached 26,056,000 metric tons. The increase occurred in foodstuffs and raw materials, imports of manufactured articles having declined sharply. Price changes were reflected also in the higher rate of increase in exports by quantity than by values; the total 18,332,000 metric tons representing an increase of nearly 15 per cent. Exports of foodstuffs fell off while those of raw materials and, to a lesser extent, manufactured articles increased. As compared with the first six months of 1913, imports increased in volume by nearly 20 per cent and exports by more than 80 per cent.

The visible foreign-trade balance shown by the foregoing figures was unfavorable to the extent of 166,000,000 francs. While this was surprisingly low, in view of the business depression that had prevailed since *de facto* stabilization of the franc took place toward the end of 1926, it was less encouraging if the trade was considered month by month. A very heavy export surplus was registered in January, attributable largely to the filling of orders for delivery abroad that were placed before the appreciation of the franc. An adverse balance in February was more than offset by an export surplus in March. During the second quarter, however, the balance each month was adverse, that of May reaching a very high figure.

Wheat, coal, and butter imports showed a heavy increase in both volume and value during the first half of 1927 as compared with the similar period of 1926. The volume of wine imports was only slightly higher, but the value doubled, reaching an exceptionally high figure. Imports of potatoes, common woods, and building material also gained in weight and value. The principal articles of import that show lower weights and values were coffee, cacao, alcohol, textile manufactures, pearls, diamonds, raw hides, prepared skins, metals, petroleum, machinery, clothing, automobiles, rubber, paper, and sulphate of ammonia. An increase in the volume and value of exports occurred in the cases of rice, pearls, diamonds, metallurgical products, raw hides, wool, ores, building materials, yarns and fabrics, prepared or worked-up skins, and paper. Export articles showing a drop in value and volume included cereals, coal, clothing, and lingerie. Exports declared to the United States during the first half of 1927 were valued at $91,909,000, or $24,039,000 over the exports during the similar period of 1926. Gold shipments included in the 1927 figures were valued at $16,795,000, whereas no gold exports were recorded during the first six months of 1926.

The probability of a reduced volume of trade between the United States and France in a wide range of American commodities, because of the changes in the French tariff established in connection with the Franco-German treaty, effective September 6, 1927, imposing on certain lines of American goods duties four times as high as those applying to competing products from Germany, England, and other countries, was avoided temporarily through diplomatic exchanges toward the close of the year. (See below under *History*.) American shipments to France in the lines subjected to the fourfold duties have amounted to well over $10,000,000 a year. The principal classes of goods affected were: Electrical equipment, heavy machinery, light machinery, and instruments; hardward and other metal products, chemicals, leather, certain textiles, earthenware and glassware, and the range of specialty products.

By the terms of the treaty, Germany granted France the benefit of the conventional duties of the German tariff, which are those hitherto paid by the United States and other countries enjoying favored-nation treatment in Germany, and, in addition, established reductions from the former rates on a list of commodities of particular interest to France. While the favored nation treaty between the United States and Germany assured American goods of the benefit of the new reduced duties, the majority of the new German duties concerned characteristic products of France and Alsace-Lorraine, mainly agricultural products, wines, and textiles, which were not shipped in quantity from the United States to Germany. The concessions granted to German goods entering France, by the terms of the treaty, had a more important bearing on American trade. On most of the products of which she was an important producer, Germany either received favored-nation treatment on the basis of existing rates, or was accorded the new minimum duties established by the partial revision of the French tariff, which went into operation simultaneously with the treaty, and affected over 400 items. Before the War, Germany enjoyed the most-favored nation treatment in the French market, a circumstance which, especially with her nearness to the northern industrial section of France, gave Germany distinct advantages as compared with other countries. Since the War, Germany had paid higher rates of duty on most of her exports to France than were levied on similar goods from other countries.

FINANCE. In the middle of the year the U. S. Bureau of Foreign and Domestic Commerce reported that the Poincaré government had continued to press its programme of financial readjustment, in spite of less favorable conditions in industry and an uncertain outlook in some lines of taxation. The steps taken since July, 1926, had brought the country not only a return of confidence but also, at least temporarily, a stable currency—stable in fact if not in law. The maintenance of this latter condition was to be one of the great tasks of the government in the immediate future. The policy of the government as to public finance in the second quarter of 1927 showed a realization of the importance of three factors—a balanced budget, a recasting of the obligations involved in the short-term debt, and steps looking toward the adjustment of the foreign debt. Undoubtedly one of the factors which in the minds of the people had stood out most clearly as typifying the financial advance had been the progress toward a budget balanced not only in form but in fact. Hopes of this sort had been repeatedly defeated before 1926, and if a balance were to be achieved in that year it would be because of very exceptional efforts on the part of the government and the taxpaying public. A provisional balance for the fiscal year 1926, established on March 10, 1927, put the receipts for the year at 40,450,000,000 francs and the expenses at 39,375,000,000 francs giving a nominal surplus of receipts of 1,075,000,000 francs. This figure did not include the tax increases established by the law of Dec. 4, 1925, amounting to 2,700,000,000 francs, which were turned over directly to the treasury. It did not include some 1,018,000,000 francs turned over to the amortization office nor the receipts under the Dawes Plan. Neither did the balance given above include the income from the postal, telegraph, and telephone services. If all these items were added, it was estimated that the total payments by the French people during 1926 would amount to more than 48,000,000,000 francs.

It was impossible to state with any degree of accuracy what the yield of 1927 might be. Special efforts were made to hasten tax collections, but did not meet with any special degree of success. The budget estimate for 1927 passed the parliament in its final form on Dec. 19, 1926. As adopted, expenditures were estimated at 39,541,444,000 francs and revenues at 39,728,311,000 francs, giving a balance of 186,867,000 francs in revenue.

The steps taken to bring about a real budget balance would have been of comparatively little importance had not conditions developed contemporaneously, which allowed the government to put the treasury in a stronger position. The danger that the treasury might not be able to meet the heavy maturities coming due had, in fact, been one of the weakest elements in the French financial position. That it might not meet these maturities except by new inflation had in recent years been one of the chief causes of public apprehension. The steps taken to balance the budget were in themselves measures which helped to restore popular confidence. Following the renewal of confidence, investors again came to the aid of the treasury, and their support had already enabled it to put through measures to consolidate a portion of the public debt, to rearrange the maturity dates for 1927, and in large degree to reassume its normal functions as "banker of the budget."

On June 27, 1927, M. Poincaré laid before the finance committee of the Chamber of Deputies the outline of the 1928 budget proposals. Estimated receipts were set at 42,161,000,000 francs and expenditures at 41,528,000,000 francs, leaving an estimated surplus of 633,000,000 francs. It was explained that most of this surplus, or probably about 400,000,000 francs, would be applied to salary increases for employees of the postal and telegraph services and to the cost of floating a consolidation loan of May, 1927. As compared with 1927 budget estimates, the proposals for 1928 were 2,433,000,000 francs higher with regard to receipts and 1,987,000,000 francs higher on the expenditure side. No changes were proposed in taxes already in existence, and no new taxes were proposed. However, estimates of the yields of certain taxes, principally those on sales of real estate, were reduced by 390,000,000 francs, and a further reduction of 100,000,000 was made on the estimated yield from direct taxes. The increases in expenditure, over those noted in the budget for 1927, were accounted for mainly by increases in salaries of government employees for which a sum of 1,100,000,000 francs was inserted in the budget. New increases in military pensions would absorb 650,000,000 francs to which must be added 250,000,000 francs voted for the year 1926 and carried forward for 1928. The reduction in the length of military service, bringing with it an increase in the pay of men engaged as volunteers, accounted for a further item of 300,000,000 francs in the budget bill. In order to carry out a special programme relating to agricultural production, an additional credit of 37,000,000 francs was provided.

The budget of 1927 included a sum of 15,534,000,000 francs to take care of the consolidated debt and the long-term debt, whereas in the budget for 1928 this charge was reduced to 13,560,000,000 francs, a decrease of 1,974,000,000 francs. Of this difference, 400,000,000 francs was the result of improvement in the value of the franc, the 1927 budget having been established on the basis of 150 francs to the pound sterling and the 1928 budget calculated on the basis of 124 francs. The increase in annuities received under the Dawes plan permitted the suppression of 833,000,000 francs which was inscribed in the 1927 budget against interest and payments on the public debt. The reduction in rate of interest paid by the amortization fund on its national-defense notes did away with the budget subsidy of 490,000,000 francs granted in 1927. Furthermore there was a decrease of about 300,000,000 francs in the service of the floating debt, resulting from the repayment of the debt of the Bank of France to the Bank of England and of the treasury bonds issued in England since 1924.

SHIPPING. The maritime goods traffic in the Mediterranean ports of France during 1926 fared better than that in the Atlantic and Bay of Biscay ports. Aside from Marseilles, where goods traffic was virtually the same as in 1925, the ports in this region all registered good increases. Cette rose from tenth to eighth place among French seaports, and St. Louis-du-Rhône rose from fourteenth to thirteenth. Marseilles' lead over other French ports, while greater than in 1925, was not so great as it was prior to the War. It may be mentioned, however, that if St. Louis-du-Rhône were treated as an annex of Marseilles, as is done for the ports lying near to Rouen and Bordeaux, the ascendency of this city would be more clearly marked. The total number of vessels entering French ports in 1926 was 24,066 of 44,372,872 tons; vessels cleared, 22,351 or 37,767,574 tons.

TONNAGE OF MARITIME GOODS TRAFFIC AT FRENCH PORTS, 1926

Port	*1913*	*1925*	*1926*
Marseilles	8,938,652	7,421,530	7,329,468
Rouen	5,597,608	6,943,760	6,009,962
Havre	3,668,414	4,825,449	4,321,853
Bordeaux	4,377,569	4,633,507	3,601,995
Dunkirk	3,885,969	3,826,447	2,917,266
Nantes	1,963,715	2,085,907	1,993,507
Caen	1,111,747	1,635,479	1,540,014
Cette	1,152,929	971,780	1,183,756
St. Nazaire	1,743,044	1,172,857	1,100,973
Boulogne	1,098,911	999,547	913,901
La Rochelle	(a)	938,375	871,386
St. Louis-du-Rhône	(a)	593,646	773,882
Bayonne	(a)	731,606	605,814
Toulon	(a)	113,449	119,642

[a] Figures not available.

COMMUNICATIONS. During the calendar year 1926 the internal waterway system of France carried 39,069,000 metric tons of freight, an amount only 7 per cent less than the 42,039,000 metric tons carried before the War, in 1913. The growth of waterway and railway traffic in France since 1860 is outlined in the following table (supplied by the U. S. Department of Commerce), which gives the length in kilometers of the water and rail systems and the volume of traffic. The volume is stated in kilometric-tons, corresponding to the American system of traffic measurement in ton-miles; that is, the volume of freight in metric tons (2200 pounds) is multiplied by the number of kilometers (0.62 mile), it is carried. The passenger traffic of the railways is computed in a corresponding manner.

COMPARISON OF WATERWAY AND RAILWAY TRAFFIC IN FRANCE, 1860–1925
[*Figures in millions, except for length in kilometers*]

	Waterways		*Railways*		
Year	*Kilometers*	*Kilometric tons*	*Kilometers*	*Kilometric tons*	*Kilometric passengers*
1860	11,100	1,901	9,167	3,120	2,521
1869	11,260	1,999	16,465	6,271	4,108
1880	10,940	2,007	23,089	10,350	5,803
1900	12,150	4,675	38,109	16,557	14,063
1913	11,310	6,185	40,923	25,886	19,410
1924	(a)	(a)	41,944	22,974 [b]	22,119 [c]
1925	10,949	5,277	41,717	(a)	(a)

[a] Figures not available.
[b] Not including Nord and Paris-Orléans railways.
[c] Not including Nord railway.

Railways. The length of the principal lines open for traffic in 1926 was 25,808 miles, made up as follows: State, 5610; Nord, 2374; Est, 3116; Paris-Orléans, 4630; Paris-Lyons-Mediterranean, 6064; Midi, 2608; Alsace-Lorraine, 1402. The total receipts of all seven companies in 1926 were 12,835,249,000 francs as compared with 9,937,250,000 francs in 1925. The centenary of the first railway in France, that from Saint-Étienne to Andrezieux was celebrated at Saint-Étienne on June 12, 1927. M. André Tardieu, Minister of Public Works, took part in the ceremony, an important feature of which was the unveiling of the bust of Marc Sequin, a pioneer in the development of the locomotive. Another feature of the celebration was a procession of vehicles representing various periods in the development of transportation.

The development of electric traction by the Midi Railway was one of the most important features of the movement to reduce the dependence of French transportation on foreign coal supplies. Up to June, 1927, there had been put under electric operation 507 kilometers of the total 3174 kilometers projected. To this total were added about 252 kilometers between Bordeaux and Arcachon, with branch lines to certain local points. This supplemented those already electrified stretches between Dax and Toulouse and their tributaries. The third step in the programme involved electrification of a number of lines, the most important and the first to be undertaken being that of 112 kilometers from Porter St. Simon, near Toulouse, to Aix-les-Thermes. Construction in this area was being rapidly pushed. The Midi also contemplated the electrification of two other river valleys, those of the Ariège and the Tet.

At the instigation of the French government, the central managing committee of French railroads had definitely decided to install the Westinghouse airbrake system on their freight trains. These brakes had been used for some years on all passenger trains, as well as on certain special fast merchandise trains. Ordinary freight trains were using an antiquated system by which brakes were applied simultaneously by hand, to wheels of certain cars only throughout the train. The total cost of equipping all French freight cars with Westinghouse brakes was estimated at $62,700,000. The annual increase in cost of operation resulting therefrom was estimated at about $3,000,000. On the other hand, the economy resulting alone from the reduction in number of employees was calculated to be more than the cost of operation. A period of five years was allowed for the complete equipping of the freight trains. In accordance with the Dawes Plan the manufacture of the new equipment was to be distributed between French and German manufacturers.

Army. The French army is divided into two forces, the metropolitan and the colonial, both under the war ministry. There are three divisions of the metropolitan forces, the active army, reserves, and territorial army. The active metropolitan army on a peace basis in 1926 numbered 216,801, including an air force establishment of 32,886. Enlistment for the metropolitan army is regulated by the law of Apr. 1, 1923, and is on a compulsory basis but liberal exemptions are allowed. Service in the active army is for 1½ years but in 1926 it was being reduced gradually to one year. Starting in 1927 service began at the age of 21. The colonial army is distinct from the metropolitan army and is made up partly of white troops and partly of colored troops. In 1926 the white troops numbered 59,000, the Foreign Legion, 10,000, and the colored troops, 180,000, making with the metropolitan army a total peace strength of 734,813. The reserves and territorial army are divided into units corresponding to those of the active metropolitan army. The gendarmerie, a police force recruited from the army but concerned with civil functions, numbered 26,856 in 1926, about half of whom were mounted. See MILITARY PROGRESS.

Navy. For an account of naval conditions in France, see NAVAL PROGRESS.

Government. Under the French constitution, the president is the executive, assisted by a cabinet responsible to the Chamber. The legislative power is vested in a parliament or National Assembly, composed of a Senate and a Chamber of Deputies. The president, elected by the National Assembly by an absolute majority of vote for seven years, chooses his own cabinet; ordinarily, but not of necessity, selecting from among the members of the two chambers. The Senate is made up of 314 members aged not less than forty years, and elected by an electoral college for nine years; the Chamber of Deputies is made up of 580 members elected by direct popular vote for four years.

The president of the republic in 1927 was Gaston Doumergue, elected June 13, 1924. The ministry, appointed July 24, 1926, was composed as follows. Prime Minister and Minister of Finance, Raymond Poincaré; Deputy Prime Minister and Minister of Justice, Louis Barthou; Interior, Albert Sarraut; War, Paul Painlevé; Marine, Georges Leygues; Foreign Affairs, Aristide Briand; Colonies, Léon Perrier; Public Instruction and Fine Arts, Edouard Herriot; Public Works, André Tardieu; Commerce, Maurice Bokanowski; Agriculture, Henri Queuille; Labor, Hygiene, Assistance, and Social Prevision, André Fallières; Pensions, Louis Marin.

HISTORY

SITUATION AT THE BEGINNING OF THE YEAR. Although the Poincaré government came into power with the express understanding that it was to stabilize the franc, the entire year passed without any such move taking place, despite the fact that virtual stabilization occurred at the approximate rate of 25 francs to the dollar. Poincaré's failure legally to stabilize the currency met with severe criticism on the part of the Radical Socialist members of the National Union cabinet, although they continued to support his government because he continued to follow the foreign policy of Briand, a policy aimed toward international peace. Many of Poincaré's own followers bitterly attacked him for continuing to support the attitude of Briand toward international affairs and the League of Nations in particular, but the premier met these critics with the reply that it was only by giving Briand free rein that the cabinet was able to stand. There is little doubt that many times Briand's conciliatory policy toward Germany and his proposal to abandon the Rhine territory to Germany irked Poincaré as well as his followers.

The position of Briand and his party in the cabinet was considerably strengthened by the senatorial elections held on January 9. The Right parties to which Poincaré naturally adhered gained three seats and lost nine, while the Radical Socialists gained twelve seats and lost six. Taken as a whole the election was a strengthening of the Left parties in the Senate at the expense of the Right and Centre. Fernand Bouisson, a Socialist, was elected President of the Chamber of Deputies and Paul Doumer, a staunch supporter of Briand, was elected President of the Senate.

Poincaré's strong support of his foreign minister resulted in the Left supporting his position with regard to the stabilization of the franc. When questioned in the Chamber concerning his programme the premier stated that "We will do everything in our power to maintain the franc stable at between 122 and 123 to the pound sterling." This is a rate of approximately 25 to the dollar which prevailed throughout the entire year. Although this statement was very indefinite it did have a good effect on general business conditions which were in a serious slump. The effect was especially good when the government was able to meet all its financial obligations and accumulate foreign credits of sufficient size to be a vital factor in any stabilization scheme.

About the middle of February the premier stated that stabilization at that time was absolutely impossible and that he could not tell whether it would be possible during the lifetime of the ministry. "Those who say it can be done now are either rash or unaware of the difficulties in the way of the measure. Legal stabilization is much more difficult than *de facto* stabilization. Furthermore, even if I had plans I would not divulge them, for the only way to avoid speculation is to leave everybody in complete ignorance." Many observers were of the impression that Poincaré was very desirous of pushing the franc much higher than 25 to the dollar before stabilization took place. Naturally this latter procedure would be very welcome to the banking and creditor class and very unwelcome to the debtor class. In post-war Europe the phenomenon was repeated time and again when the question of stabilization arose, the creditor class demanding a return to pre-war value and the debtor class stoutly defending further inflation and objecting to any move that would make them pay back in a currency that had a greater purchasing power than it had had at the time it was borrowed.

THE DAUDET AFFAIR. During the summer a considerable flurry was caused in French politics by the so-called Daudet affair, which arose from the statement of Léon Daudet, the leader of the Royalist Party and editor of *L'Action Française*, that his son, who was found dead in a taxicab in 1923, had been assassinated by the police. Daudet was sentenced to five months' imprisonment for defamation because of this statement, but refused to surrender. He locked himself in his offices with almost 100 followers and it was not until the police had surrounded his "fortress" and turned fire hoses on the royalist supporters that his capture was consummated after a four-day siege. Thirty persons were injured in the mêlée.

Quite obviously the imprisonment of Daudet would give him all the attributes of a martyr, and the government determined to commute his sentence and free him on Bastille Day (July 14). The government's plan went awry, however, when Daudet by a clever trick escaped from Santé prison and disappeared as effectively as though the earth had opened and swallowed him. This Daudet affair was merely a ripple on the surface of French politics and is told here merely as one instance of the troubles of the Poincaré government. The premier was continually attempting to smooth out difficulties with one group or another that supported his government, and was always able to secure a vote of confidence whenever he asked for one, chiefly because no single party or any other group of parties was strong enough to undertake the task of struggling with the "battle of the franc."

LEGISLATION. Several important acts of legislation were passed by parliament before it adjourned for the summer session in July. One measure reorganized the army and provided for the reduction of the length of service from one and a half years to one year. Another measure, which caused the government a great deal of trouble, was the civil list bill which raised the salaries of state employees. The occasion for the government's concern was the demand on the part of the Left that the bill should be retroactive from Aug. 1, 1926. While Poincaré recognized the justice of this demand he stoutly denied that the government had the financial means necessary to carry it out and it was only by threatening to make the matter a question of confidence in the government that he was able to carry his point.

The most important act was probably the one concerning electoral reform, a subject that had been under debate for several months. The measure as finally passed provided for the dividing of the country into 612 election districts, each one to elect a deputy. Another provision was that on the first ballot a candidate to be successful must have an absolute majority of all votes cast as well as a number of votes equal to one-fourth of all the voters on the district list. In case a second ballot is necessary, however, a nominal majority of the votes cast would elect. This new method was merely a return to the *scrutin d'arrondissement* from the *scrutin de liste.* The *scrutin d'arrondissement* is considered far more democratic than the *scrutin de liste* and is the method used in the United States for the election of members of the House of Representatives.

The new method does away with the practice of proportional representation and in theory, at least, will have a tendency to check the bloc system of government which has ruled France for years. Whether this will actually happen remains to be seen. The Left bloc supported the measure chiefly because they expected it would strengthen their hands by keeping them in closer touch with their constituents. The new electoral law was to be tried out for the first time in the elections which were to take place in the spring of 1928. Needless to say discussion was rife as to the effect of the law and the elections on the life of the National Union ministry. Considerable speculation was abroad as to whether the Left bloc would continue to support the Poincaré Nationalists or whether they would unite with the Socialist group (Centre) and form a government which would disregard the Nationalists entirely.

FOREIGN RELATIONS. In August, after three years of negotiations, France and Germany signed an economic pact which was to last only until Dec. 15, 1928, but which was subject to renewal. The chief feature of the pact dealt with the tariff, which was to be based on the familiar "most favored nation" reciprocal agreement. The publication of a new French tariff law on September 8, as a result of the agreement between France and Germany, caused considerable concern to American exporters. Under the new bill American goods would have to pay the full tariff rates and in some lines would be practically shut off from the French market because of German competition in the same lines of trade. On the day after the publication of the new law, American officials protested to the French government and asked for immediate moderation of the act. In many quarters of French opinion satisfaction was expressed on account of the new law because it partook of the nature of reprisal against the high-handed American tariff rates which virtually excluded French goods from the American markets although they were not in specific competition with American manufactured goods in the same line.

In some sections of American editorial opinion there was a feeling that the French were deliberately retaliating for the failure of the American government to change the provisions of the debt settlement agreement. To some extent the bitter anti-American feeling was offset by the transoceanic flight of Colonel Lindbergh and the visit of the American Legion. Colonel Lindbergh's exploit is treated under the title AËRONAUTICS and the visit of the Legion under AMERICAN LEGION. The French government in its reply to the American protest stated that the new rates were to stand until such times as the two governments negotiated a treaty based on mutually reciprocal concessions. The American government stated just as strongly that until such a treaty was negotiated the rates of the Fordney-McCumber Tariff act would stand and it would continue to press for the non-enforcement of the new French rates. The Democratic press of the United States seemed to derive a great deal of enjoyment from the discomfiture of the Republican administration, and undoubtedly hoped that a tariff war with France would provide good substantial campaign material for an attack on the protective tariff system in the presidential campaign of 1928.

The tariff controversy was temporarily settled when, on November 21, the French government restored the rates imposed on American imports prior to September 6. This restoration resulted from a provisional agreement reached between the two countries late in October by the terms of which American goods should pay the same duties as they did previously except in cases where the new minimum French tariff prescribed higher rates for everybody. The American government agreed to discontinue the activities of Treasury agents who, according to the Fordney Act, examined the books of foreign concerns in order to get a basic cost of production and thus raise or lower the tariff rates to meet foreign competition on a scientific footing. For a similar discussion with Argentina consult the article on that country.

Relations with Russia during the summer were very severely strained by an act of the Soviet Ambassador at Paris, Christian Rakovsky. Rakovsky, very injudiciously, to say the least, signed a document issued by the Central Committee of the Communist Party, which aimed to have the citizens of any country which might be at war with Russia "work actively to defeat their governments" and suggested that soldiers of these countries should join the Bolshevik army. Naturally the French government strongly resented such sentiments and made a point of strongly protesting to the Soviet government. The Russian Foreign Minister, Tchicherin, disavowed the action of Rakovsky, "reproving in the clearest and most formal manner the idea that one of the Soviet's representatives could organize a propaganda of insurrection and desertion on the territory of France, with which country the Soviet government entertains pacific relations." Despite this disavowal the Right press of France demanded in no uncertain tones the recall of Rakovsky. This was finally acceded to by the Poincaré cabinet, although Briand was able to accomplish it with the minimum amount of friction. Rakovsky was succeeded by M. Dogalevski. Attempts to settle the chief bone of contention between France and Russia, the old Czarist debt, were prominent during the year but no working agreement was reached.

Relations with Italy during the year passed through the entire gamut of friendliness and hostility. The trouble began when Italy signed the treaty of Tirano with Albania (q.v). As noted in a discussion of that treaty under Albania, Jugo-Slavia turned first to Germany and then to France for a treaty alignment which would offset Italy's evident economic and political penetration of the Balkans. The result was the signing of a pact between the two countries in the last month of the year, much to the chagrin of Mussolini.

The signing of the treaty with Jugo-Slavia took on much more significance in the light of the visit of an Italian squadron to Tangier in the last week of October, which reminded one very much of the dispatch of a German warship to Agadir in 1911 and the visit of the Kaiser to Tangier in 1905. The French and Italians were undoubtedly rivals in Northern Africa and the fact that the French practically shut Italy out of Morocco in 1911 was something that galled Mussolini. Although never officially stated, there was no reasonable doubt that the Italian squadron visited Tangier to tell France that in any further changes in Africa Italy was to be considered a vital factor and there was also no reasonable doubt that France's alignment with Jugo-Slavia was an answer to Italy's projection in the Northern Africa sphere.

According to treaties signed in 1900, 1902, and 1912 Italy gave up any rights in Morocco and Tangier for a free hand in Libya. The French press brought this fact out forcefully in discussing the Italian visit to Tangier. The anti-French outburst in Italy after the signing of the treaty with Jugo-Slavia was lightly passed over by the French press and as the year closed Italo-French relations seemed to be taking a smoother path under the guiding influence of the pacific Briand. He said publicly that the Tangier incident was merely a trifle of no significance and that the treaty with Jugo-Slavia had no connection with it but was only another peace compact between nations encouraged by the League of Nations. He said a few nice things about Mussolini and declared that a war between the two countries was an impossibility. On December 3 a commercial agreement was signed between the two countries and this was hailed as an omen of good will between the Latin governments.

SITUATION AT THE CLOSE OF THE YEAR. The stabilization of the franc was brought to the fore again in the early part of December by the statement of Premier Poincaré on December 8: "You know very well that we are in a difficult financial situation and that we are on the eve or the day before the eve of important and inevitable money operations. Whatever solution may be reached, we shall not remain forever with money which is not convertible into gold. You also know that we cannot undertake such operations, whatever may be the solution—and I prejudge nothing—without absolute monetary, financial and economic security, not for six months, and not even for one year, but for several years." There was much speculation as to when the day of stabilization would arrive but most observers felt that it would not come before the May, 1928, elections, and that Poincaré would enter those elections with the slogan that he and the franc stood or fell together.

Consult also articles on LEAGUE OF NATIONS; PEACE AND PEACE MOVEMENTS; MILITARY PROGRESS; NAVAL PROGRESS; SOCIALISM; GERMANY; AËRONAUTICS; AMERICAN LEGION; DAWES PLAN.

FRANCIS, DAVID ROWLAND. American diplomat and political leader, died at St. Louis, Mo., January 15. He was born in Richmond, Ky., Oct. 1, 1850, and, going to St. Louis, Mo., in 1866, was graduated from Washington University in 1870. Entering business in a commission house in 1877, he established the firm of Francis Brothers & Company, and the D. R. Francis & Brother Commission Company, grain merchants, of which he was president. He was president of the Merchants' Exchange in St. Louis, 1884. In 1885 he was elected mayor of St. Louis on the Democratic ticket, and in 1889 was elected Governor of Missouri. In 1896 he served as Secretary of the Interior in President Cleveland's cabinet. In 1904 he was president of the Louisiana Purchase Centennial Exposition, and on Mar. 6, 1916, he was appointed, by President Wilson, ambassador to Russia, being present in that country at the time of the revolution when the czaristic régime and the Kerensky revolutionary government were overthrown, and the Bolshevist rule was established. He was the first foreign diplomatic representative to recognize officially the republic established by Kerensky. Later, when the Bolshevist government established its administration, he was accused of aiding a counter revolution in Russia. In 1916, when the United States represented both the German and the Austrian interests in Russia, Ambassador Francis presented a German peace proposal to the Russian government, and he participated in many important conferences. After the hostile army had approached Petrograd, Ambassador Francis left that city for Vologda, and later proceeded to Archangel, where he maintained relations with the new government. In October, 1918, being in London, he was summoned to Paris to confer with Secretary of State Lansing. Mr. Francis at one time was owner of the *St. Louis Republican;* he sold it to the *Globe-Democrat* in 1919. He was vice president of the Merchants-Laclede National Bank, president of the Madison County Ferry Company, and director of the Mississippi Valley Trust Company and trustee of the New York Life Insurance Company, in addition to being interested in various philanthropic and civic enterprises.

FRANKLIN, BENJAMIN, ANNIVERSARY. See CELEBRATIONS.

FRASER, SIR JOHN GEORGE. South African statesman, died at Bloemfontein, South Africa, in June. He was born at Beaufort West, in the Karroo, Dec. 17, 1840, the son of a Scotch clergyman, and was educated in Scotland at the Free Church Institution at Inverness, and at Marischal and King's Colleges, Aberdeen. He returned to South Africa in 1861, and after fighting in the Basuto war he became secretary to Sir John Brand, President of the Orange Free State. After holding several civic and legal offices, he entered active politics, and from 1880–99 represented Bloemfontein in the Volksraad, being its chairman in 1884–96. In 1896 he stood for the Presidency but was defeated by Mr. Steyn. In 1899 he opposed the war policy of the Orange Free State, but supported the Boer cause until Bloemfontein was occupied by Lord Roberts, when he turned the town over to the British commander. He helped in the work of reconstruction, and was a member of the Legislative Council and the Inter-Colonial Council, under Lord Milner. He was a consistent opponent of a closer union between the Transvaal and the Orange Free State, but when the four South African colonies were merged into a single state, the Union of South Africa, he became a senator in the union parliament, at the invitation of General Botha, serving from 1910–20. Fraser was created a knight in 1905, and received the degree of LL.D. from Aberdeen University.

FREE BAPTISTS. See BAPTISTS, FREE.

FRENCH CONGO. See FRENCH EQUATORIAL AFRICA.

FRENCH EQUATORIAL AFRICA. A French possession in Africa on the Atlantic coast between the territories of the Belgian Congo and British Kamerun; comprising the region formerly known as the French Congo; stretching northward to the Bahr-el-Ghazel and Lake Chad, and bounded by the Congo and Ubangi Rivers in the interior. Area 975,635 square miles; population, according to the census of 1926, 3,124,172, of whom 3031 were Europeans. Including the Kamerun territories the area is 1,048,538 square miles and the population, 4,345,936. The possession comprises the four colonies of Gabun, Middle Congo, Ubangi-Shari, and Chad. The Kamerun territories were ceded to Germany by France, in return for recognition of the French protectorate in Morocco. They were restored to France by the Treaty of Versailles in June, 1919. The boundary between French Equatorial Africa and the Anglo-Egyptian Sudan was fixed by an agreement signed Feb. 28, 1924.

Equatorial Africa is very rich in natural resources, but for the most part they are undeveloped. There are about 30,000 square miles of tropical forests extending to the Gabun coast containing many species of valuable timber. Palm oil and wild caoutchouc are the principal commercial products. Coffee is raised to some extent. Livestock includes cattle, sheep, camels, horses, asses, and ostriches. Copper, zinc, and lead are to be found. The total imports in 1925 were valued at 88,352,763 francs and the total exports at 66,809,700 francs. In 1927 the general budget for the four colonies balanced at 20,090,157 francs. The revenues are made up of import, export, and excise duties, navigation fees, and certain semidirect taxes. The colonies are under a governor-general whose headquarters are at Brazzaville, but each colony is locally governed by a lieutenant-governor, aided by an administrative council. Governor-General, in 1927, R. Antonetti, appointed in July, 1924.

FRENCH GUIANA, gē-ä′nȧ, CAYENNE. A French colony and penal settlement on the northeast coast of South America. Area, about 34,740 square miles; population at the census of 1921, 44,202. Cayenne, a seaport town, is the capital with a population in 1921 of 10,146. The population figures do not include the number in the penal settlement of Maroni, the floating population of miners, French officials, or native tribes. The latest available education statistics (1925–26) showed a school population of 3400 exclusive of Maroni, which had 208. The extensive forests are rich in timber of commercial importance. Although agriculture is not engaged in on a large scale the following products are raised: cacao, coffee, gutta percha, indigo, maize, manioc, rice, sugar cane, and tobacco. The chief occupation is placer mining for gold. Other minerals produced are silver, iron, and phosphates. The total imports in 1925 amounted to 49,171,854 francs and the total exports to 39,088,271 francs. The chief articles of export were gold, rosewood essence, various timbers, phosphates, cacao, balata, and hides. The budget, which amounted to 11,000,000 francs in 1925, must be partially met by subsidies from the home government. The colony is under a governor who is aided by a privy council and by a council-general elected by French citizens in Guiana, and is represented in the French parliament by one deputy.

FRENCH GUINEA. A French colony on the west coast of Africa between Portuguese Guinea and the colony of Sierra Leone. Area, about 89,436 square miles; population, estimated in 1925, 2,059,924, including 2049 Europeans, of whom 1059 were French. Capital, Conakry. The chief products are palm oil, palm nuts, gum, rubber, millet, rice, and coffee; experiments have been made in the cultivation of bananas, pineapples, rubber trees, etc. The last livestock census showed 430,000 cattle, 76,718 sheep, 103,817 goats, 2600 horses, and 560 asses. Some gold is found in the colony. The imports in 1925 were valued at 103,429,743 francs and the exports at 53,296,574. The chief exports were: Rubber, cattle, ground nuts, hides, wax, wool and palm-kernels. Three hundred and thirty-seven vessels entered and 327 cleared in 1923. The budget for 1926 amounted to 21,524,555 francs. The colony is under the governor-general of French West Africa (q.v.)

FRENCH INDIA. The name given to the group of French dependencies in India, of which the chief is Pondichéry. The area of the five colonies is about 196 square miles and the collective population in 1926 was estimated at 273,081. The five dependencies with their estimated populations in that year were as follows: Pondichéry, 175,168; Karikal, 56,091; Chandernagor, 26,506; Mahé, 10,321; and Yanaon, 4995. In 1925 the government maintained 59 primary schools and three colleges, with 290 teachers and 10,295 pupils. In 1926 the budget balanced at 2,840,225 rupees. The chief crops are paddy, rice, sugar, cotton, manioc, cacao, coffee and groundnuts. There are at Pondichéry three cotton mills and at Chandernagor one jute mill; the cotton mills have, in all, 1622 looms and 68,631 spindles, employing 7975 persons. The total imports for all the dependencies in 1925 amounted to 44,274,164 francs and the total exports to 51,748,624 francs. French India has 43 miles of railway. The dependencies are under a governor whose headquarters are at Pondichéry, and an elective general council; they send one deputy and one senator to the French parliament.

FRENCH INDO-CHINA. A region in southeastern Asia, comprising the French colony of Cochin-China, and the protectorates of Annam, Cambodia, Tonking, and Laos, as well as Kwang-Chau-Wan, which has been leased from China, and the district around Battambang, which was ceded by Siam. Total area, about 274,385 square miles; population in 1924, 19,636,137, of whom 26,137 were Europeans (excluding military forces). The native Annamites constitute about three-fourths of the population. Capital, Hanoï, with a population of approximately 115,000.

Other important cities are: Cholon, Bindinh, Saigon, Pnom-Penh, Huë, Vien Tiane, and Haifong. The region of which Saigon is the centre is chiefly agricultural, being one of the greatest rice producing areas of the world, but fisheries along the coast and along the lakes are of some importance. Haifong is the centre of a region devoted to agriculture, mining, and manufacture. A third district around the port of Tourane produces chiefly cinnamon, sugar, and tea. In 1923 an irrigation system was completed reclaiming 45,000 acres on which two rice crops a year could be produced.

The mineral resources of French Indo-China include coal, zinc, tin, lignite, antimony, and wolfram. The forests reserves are very important but suffer from inefficient exploitation. The import trade in 1925 was valued at 1,780,000,000 and the export trade at 2,456,000,000 francs. The general budget for 1925–26 was estimated at 77,606,000 piastres 65,742,810 being for the ordinary budget and the remainder for the extraordinary budget. The total of the local budgets (for the component parts of French Indo-China) was 48,978,053 piastres. The combined budgets of Indo-China therefore amounted to about 136,000,000 piastres—from which must be deducted 7,890,000 piastres, the subvention allowed the local budgets from the general budget. Of the total for the general budget, 19,760,000 piastres are for public works, 1,100,000 piastres for education, and 291,400 for medical assistance. At the end of 1924 the total length of railway line was 1288, about two-thirds of which belonged to the government. Indo-China is under a governor-general and a superior council which acts through a permanent commission, and at the head of each state is a resident superior, with the exception of Cochin-China, which is directly under the home government. Governor-general in 1927, Alexandre Varenne (appointed 1925).

FRENCH IVORY COAST. See IVORY COAST.

FRENCH LANGUAGE. See PHILOLOGY, MODERN.

FRENCH LITERATURE. The wave of anarchy in French literature that had set in since the war was beginning to subside a little in 1927; and while hasty production was still prevailing at the expense of solid work in many cases, the return to traditional standards was indisputable. For instance, the description of abnormal passions that had been fostered by men like Proust and André Gide was, at last, openly challenged; François Porché's *L'amour qui n'ose dire son nom* was a timely piece of writing. The curiosity for degraded humanity was still evident in books like Fr. Carco's *L'amour vénal*, but this is a study in lower strata of humanity which is not inspired by the personal tastes of the author.

The great dispute on the essence of poetry which had been raging for two years was sidetracked, so to speak, towards a renewal of interest in Mallarmé that was expressed publicly in several occasions; e.g. by two important books, Jean Royère, *Stéphane Mallarmé*, with Preface by Valéry, and Thibaudet, *La Poésie de Mallarmé*. Let us add that a reaction has set in against Valéry, the lion in the literary world since his election to the Academy.

The battle around the *Action Française*, the paper whose principal figure was the great writer Ch. Maurras, and which was condemned publicly by the Pope, is far from settled. The documents of the case were published by Maurras and Daudet *Action Française et Vatican*, and many publications *pro* and *con* followed, e.g. Mermeix, *Le ralliement et l'affaire de l'Action française*, and Marie de Roux, *Charles Maurras et le Nationalisme français*.

An imposing manifestation was held at the Panthéon, on October 26, in behalf of the "Hommes de Lettres morts pendant la Guerre"; 560 authors were thus honored.

All year round manifestations took place in commemoration of the centenary of Romanticism (1827, Hugo's *Preface to Cromwell*); special revivals of romantic plays, exhibits at the home of Nodier (where the Cénacle used to convene and which was in the Bibliothèque de l'arsenal), inauguration of the inn where Lamartine stayed in Aix, near the Lac Bourget, and which was made into a museum; and finally, December 16, at the Trocadero, a big Hugo manifestation presided over by Minister Herriot. It seemed that the celebrations would more or less continue until 1930 which some considered as really *the* date. For early 1928, the Comédie Française prepared the staging of Victor Hugo's *Cromwell* (which had never previously been represented).

The Grand Prix de Littérature for 1927 was awarded by the French Academy in June to Joseph Pesquidoux, whose work has been a constant exaltation of the traditional love for the native soil and the life on the farm, as against the evils often created by modern industrial life. For other literary prizes, see under headings below.

POETRY. A complete edition of Viélé-Griffin's poems is under way at the Mercure de France; a volume of posthumous poems by Pierre Louys was naturally received with favor; Fernand Gregh, besides a new volume. *Les clartés humaines*, published a volume of *Poésies choisies;* and the Comtesse de Noailles, who used to sing the joy of life, sings to-day *L'honneur de souffrir* (Cahiers verts). A. P. Garnier offers *Branche de guy;* Tristan Derème, *Le Zodiaque ou les Étoiles de Paris* (a disconcerting mixture of mythology with twentieth century irony). Mme. Gérard d'Houville gives charming poems in prose in *Chez le magicien.* So much for the veterans in the field. The Prix Moréas, which was awarded this year for the first time, went to Guy-Charles Cros, for his volume *Avec des mots* which marks the zenith of achievement of that young poet already very favorably known. The following are titles of volumes which are all graceful and fine poetry, although none of them tries to discover new themes: *La Lampe d'Aladdin*, by Raymond Gentil; *Odyl*, by Léon Uhl (the genre of Rostand or Geraldy); *La Forêt enchantée*, by René Fernandet (a disciple of Le Cardonnel and Valéry); *Caprices des heures*, by Jacques Normand; *Le Jardin sans clef; Ici-bas*, by Gabriel Audisio; *Ce joli temps de demoiselles*, by Pierre Menanteau; *Soleils*, by Paul Jammat. Sounding modern and sometimes original notes, we could mention: Roger Vitrac, *Cruautés de la nuit* (Cahiers du sud); Jean Catel, *Faux sens* (the author was once in America and has various poems speaking of his college recollections); Maurice Chevrier, *Stances à la Légion étrangère;* and Hélène Picard, a woman who sings in verse, as well as a woman can do it, of tramps and rascals of the slums (the "heroes" Carco describes in his stories); we go to the extreme of modernism with Emmanuel Aegerter's *Dix poèmes freudiens* (not so terribly "Freudian" after all), and Ch.-Maurice Robert, *Versets pour Léila*, a burning incantation to sensual love. At the other extreme, one has the mystic note of an already known poet, Fagus; in his *Le Sacre des innocents*, and *Ballade de Saint-Come*, he reminds one of the naive and at the same time very subtle Christian verses of Francis Jammes.

THEATRE. It is very hard to give an idea of the situation on the stage in France in 1927. Of the plays offered at the so-called "théâtres d'avant-garde" few imposed themselves on the attention of the theatre goers. Copeau seems to be out of the race altogether; Dullin and his Atelier have given chiefly foreign plays which aroused curiosity for non-French products (especially *La Danse de vie*, by the Englishman Ould); the *Maya*, an oriental product, had a long run at the studio des Champs Elysées; and *Léopold le Bien aimé*, by Sarment, who is one of the playwrights of promise of the present generation, was successful chiefly for the excellent acting of Jouvé, and of Sarment himself.

Among other new plays, the most successful seemed to have been Lenormand's *Mixture*, which also as a play proved disappointing but was followed eagerly on account of the acting of Mme. Pitoeff. The subject is very realistic, a mother sinning, stealing, even killing to procure a fine education for her child, and then (this is the Freudian theme here, for Lenormand remains true to the Viennese theories) has an unconscious wish that her daughter also be contaminated by her moral agonies and wants to sell her, who has another love, to a wealthy pretender.

The content of the following plays can be guessed easily from the titles, the love theme that is treated whenever a man wants to write a play and has no special inspiration: *Satan*, by Louis Verneuil, very dramatic love of a young woman for her old music teacher, then love for a young man . . . and melodrama; Denys Amiel, in *L'Image* also has men and women who cannot make up their mind whom and where they really love; the play of Bernstein, the veteran playwright, *Le Venin*,—which ran for months—deals with the same situation, the man does not know which woman he loves more, and the two women both think he loves the other, and generously send him away. Another play of the same order, but with scenes of a more violent character is *Les amants de Paris*, by Pierre Frondaie; the same is true of *Le Démon de la chair* by Sabattier et de la Fortelle; Duvernois et Birabeau's *L'eunuque* treats with frankness the love for the sake of love, and birth control—a topic already taken up on the stage. (See YEAR BOOK 1926.)

Another frequent theme of discussion in present day literature (see under *Novels* and *Various Items*) is the fate of the European civilization after the War, as opposed either to Eastern or to American civilization. A play by a young Belgian, P. de Mont, *Le Télescopage* points out especially the danger of the invasion of Europe by the ideals of material comfort which come from America and suggests a sort of moral alliance between English and French for a defense of the western traditional way of looking at life. What may well be termed the most conscientious attempt on the stage is Fr. de Curel's *Orage mystique;* he wonders whether the wave of religious preoccupations brought about by the War and which has suggested to many the idea of interference of a supernatural world with our life on earth is not reflecting perhaps some reality, and whether it is the fact that the phenomena of second sight, or other so called superstitious beliefs, only remain unobserved when life is more secure. Here is real drama! Marie Leneru's posthumous play *Les Affranchis* was given at the Théâtre Français as a pious tribute to a talentful woman but was nowhere considered a success.

It must be the lack of original themes that turned the French managers towards foreign authors so often, English, Dutch, German, and in several instances American. Elmer E. Rice's *Machine à calculer* was very much appreciated; so was Selwyn and Goulding's *Dancing Mothers* under the title *École du Jazz*. The year ended with D'Annunzio's *Torche sous le boisseau* (Théâtre Français) a play that can best be compared with the Sophocles plays based on Fate.

Again, many plays were revived—also probably to bring life into a stage which was only half alive. We mention: Claudel's *L'Annonce faite à Marie;* Rostand's *Chantecler;* Mirbeau's *Les affaires sont les affaires;* Zola's *L'Assomoir*, etc. Frequent presentation of Musset's *Lorenzaccio* (Français) was due to the commemoration of Romanticism of which we have spoken before. *La grande aventure* by Flers and Caillavet was one of the lasting successes at the Odéon; so was *Le bonheur du jour* by Giraud written for and admirably played by Ferandy. The one genre where the French remain always equal to themselves, is the witty farce, with more or less "gauloiserie." Verneuil's *Tu m'épouseras* is one of the best of the year; such is Guitry's *Le Miracle*, and Gerbidour et Armont's *Coiffeur pour Dames* are two other light jeux d'esprit. More audacious are *On ne roule pas Antoinette* (Palais Royal); *M le Sénateur* (Comedia), *Faut réparer Sophie* (Déjazet). Two plays poke fun at the politicians who preach socialism and then when they are in power insist on the advantages they have obtained. *Les nouveaux messieurs* by Croisset et Flers (this is a reprise) and *Ventose*, by Jacques Deval. At the end of the year Bourdet, who had earned laurels in Paris and New York in 1926 with his grave play *La Prisonnière* ("The Captive") came with a light satire on the successful "littérateur" and winner of Prix littéraire, *Vient de paraître* ("Just Out").

There are still poets who keep true to the play in verse, even if such are not often put on the stage; thus Marcel Béliard, *Jardin de la reine*, and Auguste Villeroy, *Jeu de la Lande*, who shared the Prix Valcier, of 10,000 francs for plays in verse of at least three acts. Maurice Rostand (son of Edmond) published also two rimed plays of three acts each, *La nuit des amants* and *La déserteuse*—in his usual exalted manner. Gabriel Mourey gives a poème dramatique *Daphnis*. Mme. Gérard d'Houville, under the title *Je crois que je vous aime*, had seven light plays (in prose) in her ever alert, witty, charmingly delicate vein.

In the early fall, the four directors of the "théâtres d'avant garde," Gaston Baty, Charles Dullin, Louis Jouvet and Georges Pitoeff, formed a sort of syndicate to work together and not against each other in their endeavor to raise the level of the stage; they called it a *Cartel théâtral*. And Barbusse announced for the end of the year the foundation of a "théâtre du peuple," to correspond with the tenth anniversary of the Russian Revolution,—but the opening had to be postponed.

Marguerite Moreno published some interesting memoirs, *Souvenirs de ma vie et de quelques autres.*

NOVELS. While the stream of new fiction keeps running at an almost terrifying pace, one was glad to see that the authors of the past were not neglected entirely; one of the most important event of the year was the publication of the first version of Hugo's immortal *Les Misérables*, by Gustave Simon (2 vol., Baudinière); the changes made later are important enough; not so much in the material (two great lump additions only, "Waterloo," and the episode of the Picpus convent) as in the ideas of the author; 1852 had taken place between the first writing and the actual publication, which brought about modifications in the political and philosophical ideas of Hugo. An unpublished novel by Pierre Louys, (the author of *Aphrodité*) was given out by Farrère, *Psyché;* the personal character of which had made it difficult to give it out earlier.

Proust's posthumous *Le Temps retrouvé*, published without having had the benefit of the author's last revision, and which ends the work that had created such a stir in the literary world, indicated that Proust considered as "temps retrouvé" the sensations of life when we have practically left the real world and live entirely with the life of the past as created by our retrospective imagination; when he finds, once more, on his return to Paris, the characters of his long novel, he does not recognize them, and dismisses them as spectres while the real friends are those he "sees" in the past. Let us add that the abnormal Proust, to the disgust of readers of taste (see above what was said of Porché's book), becomes more accentuated. Romain Rolland offered the third part of *L'Âme enchantée*, viz. *Mère et fils;* the story now reaches the period of the Great War and Romain Rolland once more tries to hover "au dessus de la mêlée" and sing the "Alleluia of Humanity."

In June the French Academy awarded the "Grand Prix du roman" to Kessel for his volume of three stories *Les Coeurs purs;* they deal with material obtained, as in his former books, during his stays in Russia. The "Prix Goncourt" awarded in December went to a quite unknown author, Maurice Bedel; his story of Norwegian life, *Jérôme, 60 ^{me} Latitude Nord*, deals with the free manners of Scandinavian women as contrasted with the old traditional and continental attitudes; the author claims that he did not mean a criticism of the northern women, rather the contrary, but most people could not see things this way, and an amusing discussion followed, one of the results being that the Norwegians in Paris announced the foundation by them of an annual literary prize of 10,000 francs (the amount of the "Prix Goncourt") for the book which would best "exalt" the virtues of northern countries.

The "Prix Femina," awarded as usual on the same December day (the 7th) went to Marie Le Franc, a young woman from Brittany, a teacher of French in Canada, for her novel *Grand-Louis L'Innocent*, which resembles nothing—not even a sensible novel, as Paul Souday tells in *Le Temps.* The interest in the book is due at least in part to the fact that it is written in the vague style of the day driven to an extreme; it depicts a sort of motherly and at the same time violently but veiled sensual love of a woman, separated from her husband, for a great big fellow of whom one does not know whether he is a moron or a mysteriously supernatural being; the scene is laid in the "landes" of French Brittany.

On still the same day was awarded the "Prix Théophraste Renaudot," which is awarded by the publishers both with an idea of encouraging original young authors, and an idea of booming the trade; the laureate was Bernard Narbonne, for *Maitena*, one of the successful novels of the year even before attention was called to it by the reward; Narbonne, just the opposite of Marie Le Franc, is very conscious of his art; *Maitena* is a delicate piece of psychology perhaps akin to the playwright Lenormand's manner; the heroine does not exactly live her life (tragic life), she watches herself act so to speak from the outside and the silence of the woman—who has nothing to say—is one of the chief elements of literary effect. The "Prix Paul Flat" was given to A. Lamandé for *Enfants du siècle;* the "Prix Zola" to R. Charmy for *Vertu de Province;* the "Prix Dekobra," to L. Andand for *Crois le serpent avant.*

One of the names that came to the front in 1927 is that of Panait Istrati, for his powerful description of the underworld of Rumania; *Codine* and *Mikhail* are two studies of sombre and fatal heroes which at times remind one of Dostoyevsky. Istrati is a brother, in fiction, of Francis Carco. The fascination of those men who act like blind forces in life and make unconsciously tragedy all around them continues; e.g. Ribemont Dessaigne, *Clara des jours*, and *Bourreau du Pérou;* Cl. Breton, *Bilali ou la vengeance du lion;* Philippe Soupault, *Le nègre.*

Jewish stories also continued in favor; the best in this class is Tharaud's strong *Rose de Saron;* Kessel in his *Terre d'amour* depicts the longing for Sion; André Bailly and Moise Twersky, in *Fléau du savoir*, and the continuation *Comme Dieu en France* present a curious picture of the wandering Jews, like Floigel and his wife. Jean Psichari in *Le crime de Lazarina* translates a novel which he himself had written first in modern Greek.

Among the books dealing with oriental civilizations the most discussed this year was Paul Morand's *Bouddha vivant*, in which the author approves entirely of the refusal of the East to join our civilization; others are René Maran (the author of *Batouala*) *Djouma, chien de Brousse;* Charbonnier, *Fièvres d'Afrique;* G. Soulié de Moran, *Ce qui ne s'avoue pas, même à Shangai, ville de plaisirs* in which the white race is accused of terrible disorders; G. H. Rosny, *La métisse.* The curses of civilization are underlined in Bordeaux's successful *Le Barrage*, and in André Chamson, *Les hommes de la source.*

Among fiction books dealing with religion, we have three of special importance: Bauman, *Mon frère le dominicain;* G. Bernanos, *L'Imposture*, which reminds one not a little of *Sous le Soleil de Satan* (see YEAR BOOK, 1926); and Mlle. Zanta, *La part du feu.*

While there was no really outstanding success, there were a great many novels considered as rather above the average; here are some of them: Eug. Monfort, *César Casteldor;* Colette Yver, *Haudequin de Lyon*, which reminds one a bit of the well known *Cousins d'Amérique.* by the same author; the heroes belong to the milieu of big industry; Isabelle Sandy, *Les soutanes vertes*, a sympathetic study of a poor priest; Pérochon, *Bernard l'ours et la Torpédo camionnette*, again a peasant story but in which the author gives up to some extent his very pessimistic view of life. J. H. Rosny, *Fille d'affaires*—of course, the modern business woman; Luc Durtin, in *Quarantième étage*, and André Beucler in *Le pays neuf* have the same scenario, of a man who is suddenly rich by inheritance and loses his head (both authors came quite near getting the "Prix Goncourt" or "Femina").

The question of love and sexual emancipation has inspired several stories which do not always avoid the salacious note: P. Marguerite (author of *La Garçonne*) *Ton corps est à toi;* Raymonde Machard, *La Possession;* Jean Dorsenne, *Les Amants sans amour* (less outspoken but deeper in psychology); J. Giraudaux has meditated in *Églantine* over the question of love between a girl and elderly lovers, and started quite a controversy; Maurice Rostand in his *Second Werther*, and Jouglet in *Frères* emphasizes the conflict between love and brotherly friendship; Fr. Mauriac in *Thérèse Desqueyroux*, and J. Green, in *Adrienne Mésurat* give stirring family dramas. Kessel describes admirably the life of former Russian nobility in *Nuits de Prince* (he knows them from first hand observation) and A. Hermant, in *Les épaves* treats the same subject in his usual rather flippant way. The brothers Leblond describe the French society of the time of the struggle of separation of Church and State in *L'Ecartèlement*. Quite striking is the new attitude of Marcel Prévost in his *Retraite ardente;* the famous Academician had not accustomed his public to sympathetic treatment of mystic inclinations; he is nearing the position of his fellow Academician P. Bourget, in *Nos actes nous suivent*. Charles Sylvestre has added another pretty and delicate novel to his successful earlier ones, *Amour sauvé*. Lacretelle is once more successful, this time in a great love story, *Lettres espagnoles*. Estaunié does not disappoint his readers in *Tels qu'ils furent*. Bachelin has one of his stories of country life in *Le taureau et les bœufs*. Georges Iman gives *Le cœur et les chiffres*, and G. Chéreau, of the Académie Goncourt, *L'égarée de la route*. A new edition of A. Maurois's first novel *Ni ange ni bête*. Ramuz gives *Aline;* and J. Chardonne, who had come to fame some years ago with his *Epithalame*, tries his hand once more on subtle marriage psychology in *Le chant du bienheureux*.

One of the successful novels—a favorite with many for the "Prix Goncourt," was Marc Chadourne's *Vasco*, the story of a young man disconcerted by life and finding no sense to it, who travels to Haiti, finding, however, no relief for the distress of his soul (a little in Loti style). L. Daudet, in *Napus* (for "Il n'y a plus," as children will say) speaks of things which once were so dear to us, and that pass into the night of oblivion. Lucienne Favre, *L'homme derrière le mur*, is a woman trying her hand at fame and using somewhat disconcerting methods and style—she was a dangerous competitor of Marie Le Franc for the "Prix Femina."

Let us not forget to mention a sort of historical reconstitution novel by no less than Marcelle Tinayre; *Il y a cent ans*—depicting a love in the years when Romanticism, which is commemorated now, was flourishing.

Short Stories. Just a few titles: H. Bordeaux, *Rap et Vaga*, the title of one of the stories, the heroes being two deer in the Alps; all are stories of the high mountains. Mirriam Harry, *Le mannequin d'amour;* Caumont et Cé, *J'aurais tué*. Vaillant-Couturier, the famous Socialist. gives a series of short scenes in the style of sentimental Socialism by which Barbusse is chiefly known. R. de Brimont, *L'arche symbolique*, gives clever sketches under the titles Eve, Dalilah, Agar, the Dove of Noah's ark, etc. The son-in-law of Mallarmé (Dr. Bonniot) published unknown *Contes indiens*—which reveal a new, and humorous, Mallarmé.

Various Items. On the borderland of literature and philosophy: Clémenceau, *Au soir de la pensée*—philosophical testament of the great old man; R. Benjamin, *Aliborons et Démagogie*, vivacious and cruel criticism of conditions in France to-day and especially politicians; Thibaudet, *La république des professeurs*, discussing the régime brought about by several, influential "normaliens" in power now (e.g. Herriot); Julien Benda, *La trahison des clercs*, being an indictment of the leaders of to-day who have replaced religious ideals by vague patriotism and class ideals (Benda is a disciple of Renouvier); Montherlant, *Aux Fontaines du désir*—a course in pantheistic morality. Valéry-Larbaud, *Jaune, bleu, blanc*, offers essays on timely topics. The treatment of famous lawsuits, or public events that stirred public opinion (as Henri-Robert described in his *Grands procès de l'Histoire*) were taken up by some talented writers; e.g. Pierre Bouchardon, *L'auberge de la tête noire* (containing four terrible true stories); Marcel Boulenger, *L'attentat d'Orsini;* Marie-Louise Pailleron, *L'enlèvement à la belle étoile;* Ginisty, *Histoire de la belle Mme. Tiquet;* Weiler, *Le Chevalier de La Salle* (the white man who first set foot on the soil of Chicago).

Most in fashion were the more or less fanciful biographies: and the man who started the genre, André Maurois, himself offers a *Vie de Disraeli;* John Charpentier, *Coleridge, le somnambule sublime;* Pourtalès, *Chopin;* Mistler, *Hoffman*. Then a series of religious biographies: Goyau, *Saint-Bernard;* Fr. Jammes, *Lavigerie;* Bertrand, *Sainte-Thérèse;* Rédier, *Vraie vie de Saint-Vincent de Paul;* Colette Yver, *Saint-Pierre*. Several literary studies: two lives of *Montaigne*, by Lamandé and by Prévost; *Coeur et esprit de Mme. de La Fayette*, by Magne; *Cyrano de Bergerac*, by L. R. Lefèvre; *Racine*, by Mme. de Mayran; *Port Royal*, by André Allays. Then a *Robespierre* by Béraud; a *Malesherbes*, by M. Henri-Robert; a *Vie de Law* by Oudard; a *Cardinal de Retz*, by Battifol, also a *Grand amour romantique* (Musset and Sand) by Feugères; *Amants du Lac* (Lamartine and Mme. Charles) by Cahuet; a life of *Jean Chouan*, by Drault. New books in the collection of the Vies amoureuses: *Mme. de Staël*, by J. Turquan; *Danton*, by G. Lecomte; *Lady Hamilton*, by Flament; two books on *Christophe Colomb*, one by André Marius, the other by A. de Hevesy. Also a *Vie de Suzanne Lenglen* by Claude Anet; . . . and a clever cooking book, *Plats nouveaux*, by the well-known humorist Paul Reboux.

Here might be mentioned Chevrillon's fine *Puritains du desert;* two war books: Naegele, *Les suppliciés,* and Robert Salomon, *Babel sans femmes* (Prisoner camps); and books on Russia: Andrée Viollis, *Seule en Russie:* Duhamel, *Voyage de Russie.* Kessel gives a *Petite histoire des Juifs.*

HISTORY OF LITERATURE AND CRITICISM. The scholarly and especially the critical production was very abundant; we cannot give all. Brunot had a new volume of his epochmaking *Histoire de la langue française,* IX, *Le Français, langue nationale* (period of Revolution); Ch. Beaulieux had a two volume *Histoire de l'orthographe française;* and El. Pradez, a *Dictionnaire des gallicismes;* A. Carnoy, of Louvain, a *La science des mots, Traité de la sémantique.*

There was a third volume out of *La Vie en France au Moyen-âge* (from medieval literature) by Ch. V. Langlois; a posthumous *Histoire de la poésie française de la Renaissance au Romantisme,* by Faguet. R. Bray gives a *Formation de la doctrine classique en France;* M. Magendie, *Du nouveau sur l'Astrée;* Raymond has a *Ronsard,* and Mangain, a *Ronsard en Italie.* Racine seems in fashion in this year of commemoration of Romanticism: Dr. K. Vossler, *Racine,* L. Dubuech, *Racine,* Camille Mayran, *Vie de Racine;* J. des Hons, *Anatole France et Racine* (showing the fascination of France by Racine). D. Mornet, *La pensée française au XVIII^e siècle:* Muller, *Essai sur la philosophie de D'Alembert: Mémoires de Voltaire* published by Souday; Henriot, *Voltaire et Frédéric II;* three more volumes of the *Correspondance of Rousseau,* Léontine de Villeneuve publishes *Mémoires de l'Occitanienne,* the woman mentioned in Chateaubriand's *Mémoires d'Outre Tombe* (Livre 13); and Marie-Jeanne Durry has an *Ambassade romaine de Chateaubriand;* P. Morand, *Chateaubriand, homme et vie.*

Victor Hugo inspired several publications, especially in connection with the centenary of Romanticism, Ch. Maurras, *Lorsque V. Hugo eut cent ans;* Béret not only added a volume to his magnificent edition of the *Légende des siècles,* but published a book on the whole work of *V. Hugo.* A Séché and J. Bertaud had a volume on *La passion romantique,* and Jarry on *Étudiants et Grisettes romantiques.* But the really important work here is M. Souriau's *Histoire du Romantisme* in three volumes, a work of years of faithful study, which was at once rewarded by the Academy with the "Prix Broquette-Gonin." Then there is P. Brach's *Destinée d'Alfred de Vigny;* the book already mentioned of Cahuet, *Les amants du Lac* (Lamartine). Balzac has the lion's share in the period; Baldensperger deserves the first place with his well informed *Orientations étrangères chez Balzac,* then Arrigon, *Les amies romantiques de Balzac;* Juanita-Helm Floyd, *Les femmes dans la vie de Balzac;* Ch. Léger, *À la recherche de Balzac;* Ethel Preston, *Recherches sur la technique de Balzac;* Clouzot and Valensi, *Le Paris de la Comédie humaine;* and Kra published a translation of Stefan Zweig's *Balzac.* Bouteron has *Muses romantiques;* Lyonnet, *Les premières de Musset:* Lasserre, *Du romantisme à nous;* G. Simon, *Le roman de Sainte-Beuve;* Bellessort, *Saint-Beuve et le XIX^e siècle.* Belonging to the same period we may mention Miss Gibb's *Influence de Fenimore Cooper en France.*

Coming nearer to our time: Baudelaire, *Années de Bruxelles, Journaux intimes.* A. Arnaontevich, *Henri Becque,* three fat volumes; J. Charpentier, *Le Symbolisme;* and Fort and Mandin, *Histoire de la poésie française de 1850 à nos jours.* A. Bélis, *La critique française à la fin du XIX^{me} siècle.* Marjorie Henry, *Stuart Merril.* Two books on the last days of Maupassant: Pierre Borel, *Destinée tragique de M.,* and G. Normandy, *La fin de M.* Anatole France inspires Michel Corday, *A. F. d'après ses confidences et souvenirs;* and a new attack by his dismissed secretary, J. J. Brousson, *Itinéraire de Paris à Buenos-Ayres.* Paul Souday gave three studies on *Proust, Gide* and *Valéry,* Martin du Gard had *De Sainte-Beuve à Fénelon, Henry Bremond.* Pierre Champion presented a good account of *Marcel Schwob et son temps;* Soupault writes on *Apollinaire.* Robert Dreyfus added to the Proust literature with *Souvenirs sur M. Proust,* and a periodical was launched for the fanatics of Proust: *Cahiers Proust,* with, in the first number, an "hommage" by several admirers of note. Peguy was honored in a new series of *Cahiers de la Quinzaine,* the little periodical that made him famous; the new series is edited by his own son. Yvette Guilbert prefers to exalt herself and her wonderful achievements in the revival of the old chanson; the book is *Chanson de ma vie.* Interesting for students of the last generation is J. H. Rosny, aîné, *Mémoires de vie littéraire* (Goncourt, salons, etc). E. Schuré, the author of *Les grands initiés,* writes *Le rêve de ma vie.* And we have a collective work *Chapitres de ma vie,* to which Maurois, Kessel, Durtain, Vildrac, etc., are contributors.

The death of Robert Eekhoud, the Belgian novelist, has to be recorded; as have those of Robert de Flers (q.v.) and of Jonnart (q.v.) of the French Academy. Paul Valéry was received in the Academy; and Abel Hermant, Emile Male and Madelin were elected. See ACADEMY, FRENCH. See also PHILOLOGY. MODERN.

FRENCH SOMALI, sō-mä′lē, **COAST** or FRENCH SOMALILAND. A French colony in Africa on the Gulf of Aden between Italian Eritrea and British Somaliland. Estimated area, 5790 square miles; estimated population in 1921, 208,000. The port of Djibouti is the seat of the government. Its population in 1921 was estimated at 8366, of whom 354 were European (190 French). After 1922 the government introduced a public elementary school system at the capital, supplanting the mission school which had been in operation for 20 years. The budget for 1926 balanced at 6,914,000 francs. The country has practically no industries and very little agriculture. The main sources of wealth are commerce, inland trade, and coast fisheries. The imports in 1925 amounted to 367,410,829 francs and the exports to 312,528,936 francs. The chief exports are ivory, coffee, hides and skins. The chief imports are cotton goods, butter, coal, and sugar. A large share of the exports of Abyssinia pass through the port of Djibouti, which is connected by a railway 485 miles long with Addis Abeba. The colony is under a governor assisted by an administrative council.

FRENCH SUDAN. A French colony comprising the valley of the Upper Senegal, some two-thirds of the course of the River Niger, and a large part of the Sahara Desert within the sphere of Algeria. Bounded on the east by the territory of the Niger; on the west by Mauretania, the Falémé River, and French Guinea; on the south by the Upper Volta and the Ivory Coast; and on the north by the territory of

Algeria. Area, estimated at 648,480 square miles; population, estimated in 1925, at 2,500,000, of whom 1788 were Europeans. The capital is Bamako, with 28,719 inhabitants. Other important towns and their populations are: Kayes, 10,876; Timbuktu, 7000; and Sikasso, 7000. All the chief towns have regional or urban schools. The native crops include ground nuts, millet, corn, cotton, rice, sesame, rubber, and kariti; also many cattle are raised. Native industries are of some importance, including the making of pottery, jewelry, and leather, and weaving. The total imports in 1925 amounted to 79,838,464 francs and the total exports to 3,259,377 francs. The chief imports were cottons, foodstuffs, and metalwork; and the chief exports, ground nuts, cattle, rubber, gum, kapok, skins, and wool. The budget for 1927 provided for 39,600,000 francs. There is a railway connection with the coast over a line 745 miles long. The government is under the Governor-General of French West Africa (q.v.).

FRENCH WEST AFRICA. French West Africa, comprising the Atlantic coast colonies of Mauretania, Senegal, French Guinea, and the Ivory Coast, the colony of Dahomey on the Gulf of Guinea, and the interior colonies of French Sudan, Upper Volta, and the Territory of the Niger, includes the river basin of the Senegal, nearly all the upper and middle Niger Basin, the basin of a large number of rivers emptying into the Gulf of Guinea, and the southern part of the Sahara region. It has an area of 4,665,000 square kilometers and a population of 13,541,611, as compared with a total area of all the French protectorates and mandated territories of 10,255,510 square kilometers and a total population of 55,631,184. So diversified is the native population of French West Africa that official French reports classify the inhabitants under more than 50 groups. Some very extensive areas of this region are practically deserted, while others have a population as high as 60 persons to the square kilometer.

The population according to the 1926 census figures, which were published in the fall of 1927, was 13,541,611, an increase of 1,258,395 since the 1921 census. The colonies had the following populations: Senegal, 1,358,439; French Guinea, 2,095,988; Ivory Coast, 1,724,545; Dahomey, 979,609; Mauretania, 289,184; French Sudan, 2,634,982; Upper Volta, 3,240,147; and Niger, 1,218,717. The most thickly settled of these colonies are French Guinea and Upper Volta. The white population of the region is still very small but is steadily increasing; census figures give 15,399 for 1926 as compared with 9650 for 1921. It is said that under the present scheme of developing the resources of the colonies, another five years will show an even greater gain in the number of foreign residents. Most of these are now concentrated in the larger towns. Dakar in Senegal, with a total population of 40,152 has 2939 Europeans; Porto Novo, in Dahomey, with 21,643 population has 268 Europeans; St. Louis, in Senegal, with 18,042 inhabitants has 1038 Europeans. The only interior town with an appreciable foreign population is Bamako on the Upper Niger River with 568 Europeans out of a total population of 15,596. The natives in general live by farming and stockraising. Up to the present time few useful minerals have been discovered and the output is comparatively small in value.

There were in 1925–26, 275 village schools with 23,163 boys and 1205 girls, 71 urban schools with 4580 pupils, and 7 high schools with 664 pupils for general instruction and 294 for manual instruction. There were besides 142 evening schools for adults with 5614 pupils and 749 teachers. The expenditure on education was 9,440,000 francs. The financial estimates for 1927 placed the total revenue at 621,000,000 francs, including 235,000,000 francs for the general budget, 284,000,000 for the local budgets and 102,000,000 for the supplementary budgets; the total expenditure was estimated at 531,000,000 francs, consisting of 173,000,000 for the general budget, 261,000,000 for the local budgets, and 97,000,000 for the supplementary budgets.

The imports into French West Africa are mostly food substances, textiles, mechanical implements, and beverages; the exports from these colonies are chiefly fruits, oils and oil seeds, as well as rubber, cotton, cocoa, and timber. An indication of the success attending the efforts to expand native production is to be found in the higher value of French West African trade during 1925. The imports into the colonies in that year were 1,114,970,591 francs, as compared with 764,370,275 in 1924; the exports for 1925 were 899,063,623 francs as compared with 653,740,634 in 1924. Both imports and exports attained a larger amount in the case of every colony except French Sudan, where a 70 per cent increase in imports was accompanied by a 25 per cent decrease in exports. It is probable, however, that some of the exports accredited to Senegal and French Guinea originated in French Sudan.

Although French West Africa has numerous water-courses, with some exceptions those that are navigable are suitable only for small boats and usually for limited distances. Accordingly the transportation, so essential to the development of the colonies, must depend mainly on railways. There are about 1825 miles of railroads, the principal lines being those of Dakar-St.-Louis (Senegal); Thies-Kulikoro (Senegal and French Sudan); Konakry-Kankan (French Guinea); Abidjean-Buke (Ivory Coast); Kotonu-Save (Dahomey); and Porto Novo-Pobe (Dahomey). About 3000 additional kilometers of railroads were either under construction or planned in 1927, but the full programme will not be completed for many years.

A governor-general, assisted by a council, is at the head of the administration of all French West Africa. The seat of government is at Dakar. Each colony is under a lieutenant-governor subordinate to the governor-general. Governor-general in 1927, M. Carde, appointed Feb. 20, 1923.

FREUD, SIGMUND. See PSYCHO-ANALYSIS.

FRIENDS, RELIGIOUS SOCIETY OF. A mystical religious sect which originated in England in the middle of the seventeenth century. The founder of this religious society was George Fox (1624–1691), who visited America in 1672. The first Yearly Meeting in the United States was held at Newport, Rhode Island, in 1661, and has continued under the name of New England Yearly Meeting. Others established within the next forty years are known as Baltimore, Philadelphia, New York, and North Carolina Yearly Meetings, and these are composed of quarterly and monthly meetings having one or more congregations. In the nineteenth century, others were formed as migration moved westward. The largest body, known as the Orthodox Group, organized what is known as the Five Years Meeting in 1902, which meets as a delegate body every five years, and in 1927 consisted of twelve yearly meetings, with a membership of approximately 81,000. Its headquarters are at Richmond, Indiana. The work of the various departments, such as Home and Foreign Missions, Peace, Religious Education, etc., was under the direction of a General Secretary and executive secretaries of Boards. *The American Friend*, a weekly religious journal, is published at headquarters, as is also literature for the Bible schools of the Five Years Meetings.

The Five Years Meeting also maintains seven colleges for higher education as follows: Earlham, Richmond, Ind.; Penn, Oskaloosa, Iowa; Guilford, Guilford College, N. C.; Wilmington, Wilmington, Ohio; Whittier, Whittier, Calif.; Friends University, Wichita, Kan.; Nebraska Central, Central City, Neb. Haverford College, Haverford, Pa., is maintained by Philadelphia Yearly Meeting, and Pacific College, Newberg, Ore., by Oregon Yearly Meeting, not a part of the Five Years Meeting. Another Orthodox body not a part of the Five Years Meeting is the Ohio Yearly Meeting, with a membership of 6308 in 1926.

The Liberal Branch of the Religious Society of Friends includes seven Yearly Meetings federated in the Friends' General Conference, which meets in the even numbered years and conducts work in religious education, social service, and advancement of Friends' principles. The separation of 1827 centred around the doctrinal issues of that day and the preaching of Elias Hicks. The General Conference emphasizes the freedom of the individual to follow the voice of God in his own soul rather than any individual or church authority. The membership in 1927 was 16,576, and there were 138 meetings. Publications include the weekly periodical, *Friends' Intelligencer*, and a monthly magazine for children, *The Scattered Seeds*. The Society conducts several secondary schools.

The tendency, of recent years, among the Friends in America, has been more and more towards working together and with English Friends. Among the united undertakings were: The Young Friends' Conference; Woolman School, founded in 1915 as a school for religious and social study, and located at Wyncote, Pa.; the American Friends' Service Committee, formed in 1917 for war relief work, and since the war conducting Friends' Centres at home and abroad for international understanding and reconciliation between conflicting nations, races, and other groups. A Conference of all Friends in America was called to meet in 1929.

FROWDE, HENRY. British publisher, died March 3. He was born in 1841, of an old Devonshire family. At an early age he entered the bookselling and publishing business, and was manager of the London Bible Warehouse in Paternoster Row until in February, 1874, he became manager of the London office of the Oxford University Press, serving until March, 1913, when he retired. In 1883 Frowde took over the publication of the secular books published by the Oxford Press, the so-called Clarendon Press books, and from that time he was formally entitled "Publisher to the University of Oxford." In 1897 the university granted him the degree of M.A. honoris causa, and he was incorporated with Pembroke College, of which his old friend Bartholomew Price, for many years secretary to the delegates of the Clarendon Press, had become master. Frowde was an efficient, though modest, figure in the publishing world, and his name was known to book sellers and buyers wherever the English language is spoken.

FRUIT CROPS. See HORTICULTURE.

FRUIT FLY, MEXICAN. See ENTOMOLOGY, ECONOMIC.

FRUIT MOTH, ORIENTAL. See ENTOMOLOGY, ECONOMIC.

FUEL. See BOILERS.

FUERTES, fwär′tās, LOUIS AGASSIZ. American naturalist and artist, died in an automobile accident at Unadilla, N. Y., August 22. He was born at Ithaca, N. Y., Feb. 7, 1874, and after graduating from Cornell University in 1897 took up the painting of birds, a field in which he had already shown considerable talent. He illustrated a number of books, including: *Birding on a Broncho* (1896); *Song Birds and Water Fowl* (1897); *Birdcraft* (1897); *The Woodpeckers* (1901); *Second Book of Birds* (1901); *Birds of the Rockies* (1902); *Handbook of Birds of Western United States* (1902); Coues' *Key to North American Birds* (1903); *Handbook of Birds of Eastern United States;* plates for *Report of New York State Game, Forest and Fish Commission* (1903); *Upland Game Birds* (1902), and its companion volume, *Waterfowl* (1903); *Birds of New York* (1910); several series in the *National Geographic Magazine* (1914–19); Burgess's *Bird Book for Children* (1919); and Burgess's *Animal Book for Children* (1920). Possibly his most striking work was a series of habitat bird groups in the American Museum of Natural History, New York. He also painted decorative panels of birds for various individuals and public institutions, including the birds of New York in the State Museum at Albany; the murals in the Flamingo Hotel, Miami, Florida; and paintings for the New York Zoölogical Society in its gardens in New York. He was a lecturer in ornithology at Cornell University, and made extensive explorations. He was a fellow of the American Ornithology Union and of the North American Society of Mammalogists.

FULTON, JOHN HAMILTON. American banker, died at Essex, N. Y., September 25. He was born at Côte des Neiges, Montreal, Canada, Nov. 12, 1869, and was educated at the high school of Montreal. He entered the employ of the Merchants' Bank of that city in 1883. In 1887 he was engaged by the Canadian Bank of Commerce and in 1894 became an accountant for that bank in New York City. He was manager of its New Orleans agency, 1898–1901, in the latter year becoming manager of the Commercial National Bank of New Orleans. In the following year he organized the Commercial Trust and Savings Bank, being manager of both banks for more than ten years, and then president. In 1919 the Commercial Trust and Savings Bank absorbed the Canal Bank, changing its name to the Canal Bank and Trust Company, one of the largest banking institutions in the South. In 1916 Mr. Fulton went to New York as one of five men who formed the executive committee of the National City Bank, and in 1922 he relinquished his position as senior vice president of that institution to become president of the National Park Bank. Mr. Fulton was active in many enterprises in New Orleans and in New York. He was president of the Louisiana Bankers' Association and chairman of the Legislative Committee of the American Bankers' Association. He organized the Morris Plan Bank of New Orleans and was its first president and was a trustee of the Morris Plan Trustees' Association. He was a director of the Crucible Steel Company, New York, of the Essex County, New York, National Bank, of the Western Assurance Company, Toronto, and of the British American Assurance Company of the same city.

FUR SEALS. See ALASKA.

GABUN. See FRENCH EQUATORIAL AFRICA.

GAGE, LYMAN JUDSON. American financier and former Secretary of the Treasury, died at Point Loma, near San Diego, Calif., January 26. He was born at De Ruyter, N. Y., June 28, 1836, and at the age of 12 moved with his family to Rome, N. Y., where he was educated at the Rome Academy. He entered upon business life at the Oneida Central Bank, serving as junior clerk until 1855, when he moved to Chicago, Ill. For three years he was a clerk in a planing mill, and in 1858 became a bookkeeper in the Merchants' Loan and Trust Company, rising to cashier in 1861. In 1868 he became cashier of the First National Bank of Chicago, being promoted to vice president in 1882 and in 1891 to president. During this time he had seen many interesting financial developments, including the time of panic following the Chicago fire, the panic of 1873, and the Greenback party campaign in 1876. In that campaign he was one of the organizers of the Honest Money League, which was active also in the first Bryan campaign, 1896. In 1892 he became the first president of the board of directors of the World's Columbian Exposition of 1893, and in that way came into public notice, as the success of the enterprise was in large measure due to his efforts. As chairman of the finance committee he was largely instrumental in raising for the exposition between $5,000,000 and $6,000,000, by popular subscription. In 1880 he was a delegate to the Republican National Convention and the chairman of its committee on finance, but in 1884 he supported Cleveland against Blaine, and in 1892 President Cleveland offered him the portfolio of the Secretary of the Treasury. Mr. Gage had taken no leading part in politics or public life until 1897 when he was appointed Secretary of the Treasury by President McKinley, an office he continued to hold in McKinley's second administration and in that of President Roosevelt until January, 1902, when he resigned and was succeeded by Leslie M. Shaw. He was elected president of the United States Trust Company of New York in 1902, serving until 1906, when he retired from active business. He received the degree of LL.D. from Beloit College in 1897 and from New York University in 1903. He was three times president of the American Bankers' Association, and was the first president of the Chicago Bankers' Club. He was twice president of the Civic Federation of Chicago, and was a trustee of the Carnegie Institution of Washington. He was the first Secretary of the Treasury to popularize a war loan when, in 1898, under the authority of Congress and in connection with the Spanish-American War, he floated $200,000,000 in bonds at 3 per cent, a loan which was absorbed by some 320,000 buyers, mainly in small amounts. While at Chicago Mr. Gage formed the economic conferences at which were discussed the various economic ideas of the period, and he presided over the forum in which different forms of thought were discussed and debated from the same platform. He organized and was president of the Chicago Clearing House Association. After he retired from business Mr. Gage made his home principally near San Diego, California.

GAINSBOROUGH, ARTHUR EDWARD JOSEPH NOEL, Fourth Earl of. Died at Exton Park, Oakham, England, August 27. He was born June 30, 1884, and was educated at Downside and at Exeter College, Cambridge. From 1908 to 1914 he was in the British diplomatic service, acting as attaché in Christiania, Stockholm and Washington. During the War he served in France, and subsequently held a staff appointment at the Horse Guards. He was Privy Chamberlain of the Sword and Cape to the Pope. Lord Gainsborough was president of the Amateur Gymnastic Association and vice president of the British Olympic Association, and was a member of the committee representing Great Britain in the Olympic Games. With Dr. Harriss, he organized the imperial concert of 10,000 voices in Hyde Park, London, on Empire Day in 1919. He received the Order of the British Empire in the same year. He was associated with Lord Lonsdale in the Olympia Horse Show, and indulged in outdoor sports as well as being interested in their development.

GALICIA, gȧ-lĭsh'ĭ-ȧ. A former crownland of the Austro-Hungarian Empire, but after 1919 an integral part of Poland. The district lies to the south of Poland and to the west of Podolia in Russia.

GALLIZIER, NATHAN. American author, died at Cincinnati, Ohio, January 11. He was born at Ludwigsburg, Germany, Feb. 8, 1866, and after graduating at the Royal College at that place went to the United States in 1882. His first important novel was *Ignis Fatuus, A Dream of the Rococo* (written in German in 1900). This was followed by: *Castel Del Monte* (1905); *The Sorceress of Rome* (1907); *Lucretia Borgia* (1909); *The Court of Lucifer* (1911); *The Hill of Venus* (1913); *The Crimson Gondola* (1915); *Under the Witches' Moon* (1917); *The Leopard Prince* (1920); *The Lotus Woman* (1922); *The Wand of Circe* (1924); and *The Red Confessor* (1926). He was a member of many literary societies and clubs in the United States and Europe.

GALLOWAY, SIR WILLIAM. British mining engineer, died at Cardiff, Wales, November 2. He was born in Paisley, and was educated at private schools, at the University of Giessen, at the Bergakademie, Freiberg, and at the University College, London. He served as inspector of mines in the west of Scotland and in South Wales, and became professor of mining in the University College of South Wales and Monmouthshire. He was a fellow of the Institute of Directors, a past president and honorary member of the South Wales Institute of Engineers, and a member of many commissions having to do with safety in mines and the conduct of coal mining. He was one of the pioneers in making researches in the action of coal dust in colliery explosions, and his conclusions and recommendations led to the saving of many lives. He suggested the use of stone dust as a means of preventing explosions, and later it was extensively adopted, under official regulations. He carried on experiments, for the Royal Commission on Accidents in

Mines, with various kinds of explosives fired into mixtures of gas, air, and coal dust. He determined the relation between height of firedamp cap and proportion of firedamp in the air of mines, and invented guides for sinking pits. He wrote many technical papers on colliery explosions and mine safety, and lectured before universities and engineering societies.

GALL STONE DISEASE. The new diagnostic X-ray method introduced several years ago by Graham of St. Louis has given rise to new viewpoints in the physiology and pathology of the gall bladder which are often quite at variance with earlier knowledge. An article by Dr. K. Blond of Professor Paltauf's Institute for Experimental Pathology of the University of Vienna (*Klinische Wochenschrift*, Aug. 20, 1927) counseled conservatism in not dropping too quickly the older knowledge which itself is largely of recent origin. The differences have to do in part with the mode of emptying the gall bladder and the source of the bile (which is obtained by sounding the duodenum), which may be the gall bladder reservoir or the liver itself. To harmonize older with more recent views the author suggests that the gall bladder will remain healthy as long as there is equilibrium between the flow of bile downward and the absorptive power of the veins. The factor which usually disturbs this equilibrium is some obstruction below, most often a muscular contraction in the duodenum which is intermittent in character. A second contributory factor is improper diet—food too rich in cholesterin, which predisposes to formation of gall stones. Obstruction with or without infection brings about a large number of affections of the gall bladder and ducts, liver and pancreas. Of causes of this obstruction the author mentions only obstinate constipation.

GAMBIA. A British protectorate and colony in West Africa at the mouth of the Gambia River. Area of Gambia proper, four square miles; population about 9000. Area of protectorate, 4130 square miles; population in 1921, about 200,000. The capital is Bathurst, on the island of St. Mary (population, 9227 in 1921). In 1925 there were eight elementary government aided schools with 1569 pupils enrolled. In 1926 the imports totaled £651,000 and the exports, £904,000. The chief imports were wearing apparel and foodstuffs and the chief exports, ground nuts, hides, and palm kernels. The figures for 1925 were: Imports, £616,000; exports, £723,000. The public revenue in 1925 was £189,086 and the public expenditure, £271,836. The public debt amounted to £113,743. The tonnage of vessels entered and cleared in the foreign trade in 1925 was 1,094,155 tons, of which 711,377 were British. There are no local railways. The colony is administered by a governor, an executive council and a nominated legislative council containing an unofficial element. Governor in 1927, Sir John Middleton.

GARBAGE AND REFUSE DISPOSAL. Reduction plants for the recovery of grease and tankage, the latter to be used as fertilizer base, continued to be used by most of the larger American cities, with some plants municipally owned and operated, and some operated under private contracts. This process disposes of garbage alone. New York City, the garbage of which was treated by the reduction process for many years, had disposed of the bulk of its garbage for a considerable period by dumping it at sea, together with other municipal refuse. Complaints of garbage and refuse washing up on the New Jersey and Long Island beaches were hastening the installation by New York City of incinerators in accordance with the recommendations of an investigating committee. Several incinerators of large size and others of smaller size are in use in various parts of the city. Providence, R. I., which for many years got rid of its garbage through the agency of private contractors who fed it to hogs, built an incinerator in 1927, thus becoming the first New England city of material size to burn its garbage and other refuse.

Outside of Boston, where the reduction system was in use, most New England cities still got rid of their garbage by feeding it to hogs, and the same was true of many cities in other parts of the country. The present trend in garbage and refuse disposal seemed to be toward incineration, either of refuse alone, refuse other than garbage after salable material has been removed, or, in smaller cities, incineration of both garbage and refuse.

The City of Baltimore, which for many years had let contracts for the disposal of garbage by reduction, started in 1924–25 on a programme for building four or five salvaging and incinerating plants in different parts of the city to dispose of refuse other than garbage. The first incinerator was put in use in 1925. Objections to the site chosen for the second of the proposed plants led to the adoption of a plan to concentrate all of the refuse at two incinerating and salvage plants. A contract for the second plant was let in 1927, and the plant was virtually completed by the close of the year. At both the Baltimore refuse-disposal plants, incoming material is dumped in storage bins. From these it is lifted by motor-operated buckets, dropped and then raked or shoveled onto sorting conveyor belts. From these, paper, rags, tin cans, bottles and metals are picked off by hand labor and dropped into bins or other receptacles, from which they are taken for sale. The worthless rubbish or "tailings" are burned. At the newer Baltimore plant there are two incinerators of the chain-grate plan, each with a capacity to incinerate the tailings from 125 tons of mixed rubbish in 24 hours. The paper, rags, and tin cans are baled; the bottles are separated into sizes and crated; broken glass is separated into flint and tinted glass, the clear glass having a higher sale value; copper, aluminum, iron, shoes, etc., are separately bagged.

Across the continent, the City of Los Angeles recently installed two refuse-disposal plants, of which one was for the recovery of salable material from household refuse, the tailings going to incinerators, while the other burns various wastes from wholesale and industrial districts. The garbage, as reported in earlier YEAR BOOKS, is sold by the city to a contractor who hauls it by rail to a hog farm. The plant for the recovery of salable materials from the general refuse is owned by a private company which pays the city about $500 per month for material delivered to it. At this plant, tin cans, after combustible material has been burned off, are detinned by a second company and then baled for sale. The Los Angeles refuse-salvaging plant was described in *Engineering News-Record*, Mar. 31, 1927, and the incinerating plant for refuse from the industrial and wholesale districts in the same journal for July 14, 1927. The last named plant has a rated capacity of 800 tons a day and consists of eight furnaces in four pairs, each pair provided with a chimney or stack 100 ft. high. The City of Birmingham, Ala., let a contract in 1927 for three garbage incinerators to serve as many districts of the city. A fourth was projected for later construction. The British type of incinerator was to be provided at each plant, equipped with forced draft and supplied with pre-heated air.

GARDENING. See Horticulture.

GARDINER, Harry Norman. American educator, killed by an automobile at Northampton, Mass., December 29. He was born at Norwich, England, Nov. 6, 1855, and went to the United States in 1874, matriculating at Amherst College, at which he was graduated in 1878. He studied at the Union Theological Seminary, 1879–82; Gottingen, 1882, Leipzig, 1883–84, and Heidelberg, 1884. He taught at the Glens Falls, N. Y., Academy, 1878–79, and was instructor in psychology at Amherst, 1891–92. From 1884 to 1924 he was, first, instructor in philosophy, and then professor of the same subject at Smith College. In 1924, when he became professor emeritus, Smith conferred on him the degree of L.H.D. At that time Dr. Neilson, president of Smith, called Dr. Gardiner "professor emeritus of philosophy, scholar and gentleman, for forty years the mentor and friend of Smith women, stimulating and inspiring, critic of their minds, manners and morals." He was a former secretary and president of the American Philosophical Association, and an advisory editor of *The Psychological Review.* He wrote *Outlines of Modern Philosophy* (1892), and edited *Jonathan Edwards, a Retrospect* (1901) and *Selected Sermons of Jonathan Edwards* (1904).

GARDNER, Alice. British historian, died at Oxford, England, November 11. She was born at Hackney in 1854, and after studying at various private schools was a student at Newnham College, Cambridge, 1876–79, taking honors in history. She was assistant mistress in the Girls' High School at Plymouth, 1880–82, and professor of ancient and modern history at Bedford College, London, 1883–84. She was lecturer at Newnham College, 1884–1914, and temporary lecturer at the University of Bristol, 1915–19. She was the first secretary of the University Association of Women Teachers, and was a member of the Council of the Royal Historical Society. She was also a member of the British Institute of Philosophical Studies. Her special field was Byzantine history, being reader in this subject in the University of Bristol in 1919, and her most important investigation dealt with the Emperor Julian and the Lascarid Empire. Her publications include: *Synesius of Cyrene, Philosopher and Bishop; Friends of the Olden Time* (for children); *Rome the Middle of the World* (a sequel to above); *Julian, Emperor and Philosopher; Studies in John the Scot; The Conflict of Duties, and Other Essays; Theodore of Studium, His Life and Times; Letters to a Godchild;* Supplementary Chapter to English Translation of Professor Hans von Schubert's *Church History; The Lascarids of Nicæa; Within Our Limits;* Chapter in *Faith and the War;* article in *History* on *Some Episodes in the History of Mediæval Salonika; History of the Sacrament in Relation to Thought and Progress;* and *A Short History of Newnham College.* She was the sister of Percy and Ernest Gardner, the archæologists.

GARMAN, Samuel. American naturalist, died October 1. He was born in Indiana County, Pennsylvania, June 5, 1843, and after graduating at the Illinois State Normal University in 1870 became principal of the Mississippi State Normal School for a year, then going to the Ferry Hall Seminary, Lake Forest, Ill., as professor of natural sciences. In 1872 he went to Harvard University to be a special pupil of Louis Agassiz in natural history, becoming later connected with the museum of comparative zoölogy and taking part in many field explorations, including Major Powell's first expedition in Colorado and the South American expeditions of Alexander Agassiz. He was also associated with many deep-sea explorations and many collecting expeditions. He was a member of many learned societies, including the Royal Geographical Society, London, the Société Scientifique de France, and the Zoological Society and Linnæan Society of London. His scientific writings include: *Deep Sea Fishes* (1899); *The Chimæroids, Chismopnea* (1904); *New Plagiostomia* (1906); *New Plagiostomia and Chismopnea* (1907); *The Reptiles of Easter Island* (1908); *Plagiostomia* (sharks, skates and rays) (1913); and more than a hundred others.

GARRISON, Daniel Mershon. American naval officer and educator, died at Annapolis, Md., December 31. He was born at Bordentown, N. J., May 3, 1874, and was educated at the Bordentown Military Institute and the U. S. Naval Academy, graduating at the latter institution in 1895. He saw active service in the Spanish-American War, winning the Congressional Medal of Honor for gallantry in the naval battle of Santiago, Cuba, July 3, 1898. During the two years after the Spanish-American War he was chief engineer of the Pacific submarine telegraph survey, and he plotted a route across the ocean. Then he served at Chemulpo, Korea, and Chefoo, China, during the Russo-Japanese War. In 1906 he became professor of mathematics at the Naval Academy, and was head of the department of mathematics, 1918–23. He retired from the naval service, Nov. 1, 1923, going to St. John's College, Annapolis, as head of the department of mathematics. From St. John's he received the honorary degree of D.Sc. in 1923.

GARY, Elbert Henry. American lawyer, steel manufacturer, and industrial leader, died at New York City, August 15. He was born on his father's farm at Wheaton, Ill., Oct. 8, 1846, and was educated in the public schools of Wheaton and at Wheaton College. During the Civil War he served in the Union army as regimental postmaster and at its conclusion entered a law office at Naperville, Ill. Two years later he graduated from the Union College of Law with the degree of LL.B. and was admitted to the Illinois Bar, being appointed deputy clerk of the Superior Court of Cook County. In 1869 he engaged in the practice of law in the City of Chicago, and in 1871 after the Chicago fire he started a new law office with Colonel Vallette. In 1872 he was elected president of the board of trustees of the town of Wheaton, serving for three years during which time he formed the law firm of E. H. and E. N. Gary and established the Gary-Wheaton Bank at Wheaton.

In 1877 he formed the law firm of Gary, Cody and Gary. In 1882 he was admitted to the bar of the United States Supreme Court and was elected county judge of DuPage County serving for eight years, during which time he held court frequently in Chicago, Cook County, and at times in other counties. In 1890 Judge Gary was elected mayor of the city of Wheaton. From this time until 1898, when he gave up his law practice and moved to New York City, Judge Gary was a leader in corporation law and insurance matters in Chicago, being general counsel for several railroads and large industrial corporations. In 1882 he incorporated the Consolidated Steel and Wire Company of Illinois and in the following year was elected president of the Chicago Bar Association.

In 1889 Judge Gary incorporated the American Steel and Wire Company of Illinois and was associated in the organization of the Federal Steel Company, becoming its first president. In 1901 he was associated in the organization of the United States Steel Corporation, becoming chairman of the executive committee and the chief executive officer. Two years later he became chairman of the board of directors of the Steel Corporation and participated actively in the development of its organization, becoming in 1907 chairman of its finance committee. In the same year he negotiated the purchase of the Tennessee Coal, Iron, and Railroad Company by the United States Steel Corporation. Judge Gary was sympathetic with various movements for increasing the safety, sanitation, and welfare of the employees of the Steel Corporation, and in 1907 advocated the abolition of the seven-day week. In 1909 he organized the American Iron and Steel Institute which included in its membership independent manufacturers as well as organizations and individuals connected with the United States Steel Corporation, and was always a stabilizing force in the steel industry. In 1911 he presided at the international meeting of iron and steel men at Brussels, Belgium. In this same year the seven-day week was ended in the Steel Corporation. The year also was marked by the beginning of the government suit for the dissolution of the United States Steel Corporation on the ground that it was a trust and acted in restraint of trade. This suit continued until 1915 when the decision of the district court was in favor of the Steel Corporation. In 1915 Judge Gary was appointed a member of the International High Commission for Pan-America to represent the United States and he served for two years. In the following year he was appointed a commissioner for the State of New York on new prisons, serving for three years and taking an active interest in the work.

When the United States entered the World War Judge Gary became chairman of the committee on steel and steel products of the Council of National Defense, and later was head of the committee representing the steel interests in which capacity he organized the industry on a war basis so that he was able to furnish the government adequate supplies of steel for war purposes. In 1919 Judge Gary was appointed a member of the United States Industrial Board of the Department of Commerce for the adjustment of post-war conditions and was appointed by President Wilson a member of the National Industrial Conference. While active in all measures leading to the improvement of working conditions and the status of Steel Corporation employees, he resisted attempts to unionize the steel industry and defended the "closed shop" against the moves of organized labor.

It was in 1919 that he fought and defeated the strike of steel workers who sought to obtain twelve hours' pay for eight hours' work. In 1920 the United States Supreme Court decided in favor of the Steel Corporation in the government suit and this ended definitely any further attempts to proceed against the Steel Corporation. In 1923 President Harding wrote to Judge Gary asking him to install the eight-hour day in the steel industry and abolish the twelve-hour day which prevailed in certain departments of some of the plants. This he did, and as a result the hours of labor in the steel plants were placed on as satisfactory a basis as in other industries. Always ready to assist in national defense, he was appointed by the War Department chairman of the advisory board of the New York Ordnance District in connection with industrial preparedness and the procurement of munitions. In this as in other positions Judge Gary's participation was in no way perfunctory, and he took active and intelligent interest, contributing much to this important matter.

Universally esteemed as he was, it was not strange that this great industrialist had received many honors both at home and abroad. He was made an honorary Doctor of Laws in 1905 by McKendree University, Lebanon, Ill.; in 1915 by Lafayette University, Easton, Pa.; in 1919 by Lincoln Memorial University, Cumberland Gap, Tenn.; Trinity College, Hartford; in 1921 by Syracuse University, Syracuse, N. Y.; and in 1922 by Northwestern University, Evanston, Ill. In addition he was made a Doctor of Science by the University of Pittsburgh in 1915, and a Doctor of Commercial Science by New York University in 1925. He also had many foreign decorations, receiving the Order of the Sacred Treasure of Japan in 1918; that of an Officer of the Legion of Honor of France in 1920; along with the Grand Cordon of the Order of Leopold II of Belgium; and the order of Ouissan Alaouite Cherifien of Morocco. In 1921 he was decorated with the Golden Cross of the Commandership of the Royal Battalion of George I of Greece; and in 1922 became a Grand Knight of the Order of the Crown of Italy.

GAS, ILLUMINATING AND FUEL. Preliminary estimates of sales of illuminating and fuel gas in 1927 as compiled by the American Gas Association indicated an increase of 20,000,000,000 cubic feet over the record-breaking total registered for 1926. The estimated 1927 figure is 475,000,000,000 cubic feet, a new high record, proportioned as follows: 334,000,000,000 cubic feet for household purposes, 135,000,000,000 cubic feet for industrial and commercial uses, and 6,000,000,000 cubic feet for miscellaneous purposes.

During the year, the use of gas for commercial and industrial heating applications continued to show phenomenal growth, the amount consumed in 1927 representing 28.4 per cent of the total sales of gas for all purposes, or an increase of 9,000,000,000 cubic feet. Manufactured gas companies served 11,400,000 customers, representing an increase of 350,000 over 1926. Miles of main totaled 91,000, invested capital $2,700,000,000, and gross operating revenue,

$520,000,000, an increase of $20,000,000 over 1926.

The manufactured gas industry, it was interesting to record, had not reported a decrease in annual sales or annual gross revenue in twenty-one years. Sales had increased 352 per cent in 25 years while the population of the country had increased only 50 per cent. Total sales per capita increased 70 per cent in ten years, reflecting a growth in sales per customer as well as an increased number of customers.

INCOME STATEMENT FOR MANUFACTURED GAS INDUSTRY IN UNITED STATES, 1926

Gross operating revenue from sales of gas	$486,000,000
Miscellaneous operating revenue	14,000,000
Total gross operating revenue	500,000,000
Operating expenses [a]	329,750,000
Taxes	45,900,000
Total operating expenses	375,650,000
Income from operations	124,350,000
Non-operating revenue	32,750,000
Gross income	157,100,000
Income deductions	50,900,000
Net income available for dividends and surplus	106,200,000

[a] Including retirement expense.

Surveys made during the year by the American Gas Association showed that household and industrial consumption of gas offered great opportunities for further development. One survey, covering nearly 8,000,000 homes in 2228 communities, showed that while 75 per cent of all families living in places of from 500 to 100,000 population and over had gas service, the percentage for the communities under 5000 was only 54. The gas appliances in actual use also showed a comparable difference. In towns of 100,000 and over, 79 per cent of the families had gas ranges, while in towns between 5000 and 10,000 population, the percentage fell to 47.9. Long-distance distribution of gas would enable the industry to reach the small towns not on gas lines, and projects were being considered.

A survey of the nation's factories also revealed an additional heating load of more than 75,000,000,000 cubic feet awaiting the cultivation of manufactured gas plants. This available business represented a total possible sales increase of more than 36 per cent, but did not take into consideration the newly opened fields of house heating, refrigeration, incineration and large-volume water heating.

On the engineering side a survey of the manufactured gas industry revealed a noticeable trend to coal-gas manufacture rather than to other methods using oil, resulting in the problem of by-product disposal becoming a much greater task than in the past. Indications for the future pointed to an even more marked trend away from oil. The use of oil gives minimum by-products, while if all gas were made from coal the residuals would amount to from fifty to seventy-five per cent of the actual gas business transacted during a twelve-month period.

Three stackless factories erected in Cincinnati during the year served to emphasize the importance of modern gas service as an eradicator of smoke. The elimination of the stacks was made possible by the use of gas and electric service. In Boston, a 13-story office building was equipped with central-fired gas boilers as the sole heating medium. This was one of the largest installations of its kind in the world.

A development of outstanding significance during the year was the amalgamation of the Natural Gas Association of America with the American Gas Association, thus bringing into one national organization all elements of the gas industry in North America. Consolidated figures showed annual sales to be 1,714,000,000 cubic feet, customers served 14,731,000, and gross revenue $785,000,000.

The estimated production of manufactured gas in the United States in 1926, the purposes for which it was used, etc., were as follows:

	Thousand cu. ft.
Carburetted water gas	251,999,000
Coal gas	71,082,000
Oil gas	30,805,000
Coke oven gas purchased and distributed for public use	83,640,000
(Coke oven gas consumed at point of production or for purposes other than public use is not included.)	
Total manufactured gas	437,526,000
Natural gas purchased and mixed with manufactured gas for public use	54,516,000
Grand total	492,042,000

Purpose	*Per cent*	*Thousand cu. ft.*
Domestic uses	70.9	323,183,000
Industrial and commercial uses	27.8	126,405,000
Unclassified	1.3	6,043,000
Total	100.0	455,631,000
Total revenue from sale of gas		$486,000,000
Miscellaneous operating revenue		14,000,000
Total gross operating revenue		500,000,000

Distribution data	
Number of meters—prepayment	584,000
Number of meters—ordinary	10,636,000
Total	11,220,000
Number of consumers	11,047,000
Miles of gas main	89,000
Meters per mile of main	126
Number of active services	8,083,000
Population served	53,688,000

STATISTICS ON COMBINED NATURAL AND MANUFACTURED GAS INDUSTRY

Gas sales, M. cu. ft.	*1925*	*1926*	*Increase*	*Per cent*
Domestic	572,646,000	612,524,000	39,878,000	7.0
All other uses	981,093,000	1,101,610,000	120,517,000	12.3
Total consumption	1,553,739,000	1,714,134,000	160,395,000	10.3
Total gross revenue sales of gas	$717,184,000	$785,000,000	67,816,000	9.5
Customers	14,136,000	14,731,000	595,000	4.2
Capital invested	$3,700,000,000	$4,000,000,000		

GAS, Natural. The natural-gas industry in the United States, according to the U. S. Bureau of Mines, continued to increase slowly but steadily in 1926, when 1,313,019,000,000 cubic feet of gas was produced and delivered to customers, an increase of 10 per cent over 1925. Of this amount 166,000,000 cubic feet was piped to Mexico and Canada; 1,312,853,000,000 cubic feet was consumed in the United States. The value of the gas per thousand cubic feet at the wells was 9.5 cents in 1925 as against 9.4 cents in 1925, and at points of consumption 22.8 cents in 1926 as compared with 22.3 cents in 1925. Of the total consumption in 1926 domestic or household consumers used 22 per cent, while industrial concerns used 78 per cent, the former paying on an average 58.1 cents per thousand cubic feet as compared with 12.8 cents for industrial concerns. In 1926 there were 3,731,000 domestic consumers of natural gas as compared with 3,508,000 in 1925.

In 1926 a total of 1,206,300,000,000 cubic feet of natural gas was treated for the recovery of natural-gas gasoline which was equivalent to 92 per cent of the total production. In 1925 the total treated was 88 per cent. There was increased output of carbon black in 1926 over 1925, although the amount of natural gas used in its manufacture decreased. The accompanying table shows the natural gas produced in the United States and its estimated value at the point of consumption.

NATURAL GAS PRODUCED IN THE UNITED STATES, 1925–26, AND DELIVERED TO CONSUMERS, INCLUDING DELIVERIES IN OTHER STATES

	1925				*1926*			
	Quantity		*Value at points of consumption*		*Quantity*		*Value at points of consumption*	
State	*M. cu. ft.*	*Per cent of total*	*Total*	*Average per M cu. ft. (cents)*	*M. cu. ft.*	*Per cent of total*	*Total*	*Average per M. cu. ft. (cents)*
Ark.	41,878,000	3.5	$5,394,000	12.9	43,566,000	3.3	$5,817,000	13.4
Cal.	187,789,000	15.8	32,587,000	17.4	204,915,000	15.6	35,495,000	17.3
Colo.	574,400	.1	61,100	10 6	553,800	([a])	130,000	23.5
Ill.	4,165,000	.4	865,000	20.8	3,808,000	.3	863,000	22.7
Ind.	1,168,000	.1	504,000	43.2	901,000	.1	379,000	42.1
Kan.	26,917,000	2.3	9,991,000	37.1	38,095,000	2.9	12,547,700	32.9
Ky.	10,770,000	.9	3,213,000	29.8	10,410,000	.8	3,378,000	32.4
La.	152,620,000	12.8	8,125,000	5.3	157,423,000	12.0	8,768,000	5.6
Mich.	400	([a])	200	50.0	400	([a])	200	50.0
Mo.	34,000	([a])	29,700	87.4	1,000	([a])	700	70.0
Mont.	1,496,000	.1	350,000	23.4	2,283,000	.2	450,000	19.7
N. Mex.	....	...	....	...	921,000	.1	75,000	8.1
N. Y.	6,210,000[b]	.5	3,778,000	60.8	7,027,000[e]	.5	4,499,000	64.0
Ohio	43,285,000	3.6	22,377,000	51.8	47,368,000	3.6	25,403,000	53.6
Okla.	249,285,000	21.0	36,121,000	14.5	286,421,000	21.8	42,140,000	14.7
Pa.	101,682,000	8.6	47,098,000	46.3	107,089,000	8.2	50,040,000	46.7
S. Dak.	4,200	([a])	2,300	54.8	10,100	([a])	14,000	138.6
Tenn.	8,500	([a])	2,000	23.5	11,500	([a])	1,900	16.5
Texas	134,872,000[c]	11.3	19,715,000	14.6	175,392,000[f]	13.4	28,165,000	16.1
W. Va.	180,345,000	15.2	70,903,000	39.3	180,223,000	13.7	76,396,000	42.4
Wyo.	45,589,000	3.8	4,149,000	9.1	46,567,000	3.5	4,669,000	10.0
Other[d]	28,500	([a])	5,700	20.0	38,200	([a])	6,500	17.0
Total ...	1,188,571,000	100.0	265,271,000	22.3	1,313,019,000	100.0	299,238,000	22.8

[a] Less than 0.1 per cent.
[b] Includes 68,000 M. cubic feet consumed in Canada.
[c] Includes 64,000 M. cubic feet consumed in Mexico.
[d] 1925: Alaska, Iowa, Maryland (consumption only), New Mexico, and North Dakota; 1926: Alaska, Maryland (consumption only), and North Dakota.
[e] Includes 79,000 M. cubic feet consumed in Canada.
[f] Includes 87,000 M. cubic feet consumed in Mexico.

GAS AND OIL ENGINES. See INTERNAL COMBUSTION ENGINES.

GASES. See PHYSICS.

GASOLINE. See PETROLEUM; CHEMISTRY, INDUSTRIAL.

GASOLINE, SYNTHESIS OF. See CHEMISTRY, INDUSTRIAL.

GASOLINE TAX. See ROADS AND PAVEMENTS.

GASTON, WILLIAM ALEXANDER. American wyer and banker, died at Barre, Mass., July He was born at Boston, Mass., May 1, 1859. and after graduating at Harvard in 1880 studied at the Harvard Law School and was admitted to the Suffolk County bar in 1883. He practiced law and became identified with the banking interests, being a member of the executive committee of the National Shawmut Bank of Boston as well as a director of several smaller New England banks. He was president of the Boylston Market Association, of the Killingly Trust Company, and a director of the Gillette Safety Razor Company and the Massachusetts Bonding and Insurance Company. He received the military title of colonel by serving on the staff of Governor William E. Russell, and was active in politics in Massachusetts as a Democrat. He was candidate of his party for Governor in 1902 and 1903, and was a delegate-at-large in the Democratic Convention of 1904. He was Democratic nominee for the United States Senate in 1905, and was at times a member of the Democratic National Committee and of the Democratic State Committee. In 1887 Colonel Gaston reorganized the Boston elevated system, of which he became president, resigning in 1901 to continue as a director until 1902. In May, 1907, he became president of the National Shawmut Bank, and in 1922, as a candidate for the United States Senate, had a close contest with Senator Lodge, who defeated him by several thousand votes. A recount was called for and initiated, but it demonstrated that Senator Lodge had sufficient lead to insure his election.

GENERAL EDUCATION BOARD. See UNIVERSITIES AND COLLEGES.

GEOGRAPHICAL SOCIETY, AMERICAN. The oldest geographical society in the United States, founded in 1852, "to collect and disseminate geographical information by discussion, lectures, and publications; to establish in the chief city of the United States a place where may be obtained accurate information concerning every part of the globe; and to encourage such exploring expeditions as seem likely to result in valuable discoveries in geography and related sciences."

The Society's leading activity in 1927 was in the field of publication. Its publications consist of books, pamphlets, maps, and a quarterly periodical, the *Geographical Review*. The *Review* contains a great variety of original articles dealing with all phases of exploration and geographical research, notes based upon the analysis of the world's current geographical literature, and reviews of the most significant geographical books. The books and pamphlets published by the Society fall into six series. The *Research Series* consists of specialized monographs. The *Special Publications* are of a more general appeal. The *Library Series* is devoted primarily to the collections of the Society. Two issues of the *Outing Series* had appeared up to the end of 1927: a Trampers' Guide to the Palisades Interstate Park and a Trampers' Guide to the Vicinity of New York City. The publications of the fifth series are known as the *Map of Hispanic America Publications* and accompany an important group of maps which the Society is producing. These basic maps of Hispanic America are on a scale of 1:1,000,000, and are in essential conformity with the International Millionth Map of the World. Notable progress in this work was accomplished in 1927, several sheets having been made ready for distribution and others being in an advanced state of preparation. Two volumes of the sixth series, *Oriental Explorations and Studies,* dealing with the explorations of Prof. Alois Musil in northern Arabia, have appeared.

The maintenance of a specialized geographical library and of an extensive collection of maps is an important phase of the Society's activity. Valuable additions were made to these collections in 1927. Six regular lectures by distinguished explorers or geographers are delivered each year before the members and guests. The Society recognizes contributions to the development of geographical science and exploration in its elections to honorary and corresponding memberships and in the bestowal of medals. The president for 1927 was John H. Finley, LL.D.; Isaiah Bowman, Ph.D., was director. The Society's building is at Broadway and 156th Street, New York.

GEOGRAPHICAL SOCIETY, NATIONAL. An organization founded in 1888 "for the increase and diffusion of geographical knowledge." Its work during 1927 reached into many fields of research. The accumulating evidence that the researches of the Smithsonian Institution in the field of solar radiation afforded promise of the discovery of the laws governing the relationship between solar activity and weather fluctuation, led the Society to continue to furnish funds for the maintenance of the Mt. Brukkaros Solar Observatory, which was built under a grant from the Society's treasury. The year's work at that observatory, affording a definite check upon observations at associated observatories in Arizona and Chile, further tended to prove correct the conclusions of the late Dr. S. P. Langley and Dr. Charles G. Abbot that on earth weather is controlled by variations in sun radiation; and that once the cycle of fluctuations of solar radiation is discovered, long-range weather-forecasting will become a matter of possibility.

It had been definitely shown that there was a fundamental cycle of 25⅝ months in the radiation given out by the sun; furthermore, this cycle had been proved to fit in with a known weather cycle. Dr. Dayton C. Miller's machine for the harmonic analysis and synthesis of curves was set to work constructing sun and weather curves. The curves it built up covering both sun and weather behavior for past years showed a very close harmony. Those it set up for years in the future have constituted a prophecy which has been fulfilled in a remarkable way, both the sun and the weather following the predictions of the machine with remarkable fidelity.

Forecasting the weather at long range through the discovery of its relationships to radiation changes in the sun promised to be only one of many important results that will grow out of the solar observatory's investigations. It has also been shown that changes in static conditions follow closely the sun's behavior and that long range radio reception conditions may be forecast. Moreover, there are indications that there are long as well as short fluctuations in solar radiation, and that these may be related to such major phenomena as Ice Age eras, changes in the earth's rate of rotation, and shifts in seismic zones.

As a result of a reconnaissance survey of the Pavlof volcano region of the Alaskan Peninsula by Dr. Thomas A. Jaggar, the famous volcanologist, for the purpose of determining the advisability of a close study of volcanic phenomena there, the Society provided a grant of $10,000 from its research fund for an expedition to that region in 1928. It was believed that Dr. Jaggar's studies, to be made to supplement and extend the data gathered by the several expeditions to Mt. Katmai and the Valley of Ten Thousand Smokes, under the leadership of Dr. Robert F. Griggs and under the auspices of the Society, would shed new light on the strange processes of volcanic activity and its relationship to earthquake phenomena. Dr. Jaggar will also tie-in the Hawaiian researches with his Alaskan investigations and correlate events in various parts of the world to test whether observed phenomena are merely local or whether they have broader geographic relationships and repercussions.

In the furtherance of polar exploration a grant of $25,000 was made from the Society's research fund to the expenses of the expedition which Commander Richard E. Byrd was expected to lead into the Antarctic regions in the autumn of 1928.

The eighth and final expedition of the Society into the Chaco Canyon country of New Mexico was headed, as were the preceding seven, by Dr. Neil M. Judd, of the Smithsonian staff. Dr. Judd's work for the season took the form of a general review of the discoveries of the previous seven seasons and the correlation of the apartment-house type of civilizations at Pueblo Bonito with the preceding eras represented by the dominance, in succession, of the Basket Makers, the Pottery Makers, and the Slab House Builders. Through the work of this series of expeditions a new chronology of pre-Columbian times in the Southwest was built up, the most populous centre of Indian culture north of the Rio Grande was found, and the character of the life lived there was brought to light.

Following its practice of bestowing the Hubbard Gold Medal on those who have performed outstanding achievements in the field of geography, the Society awarded the medal to Colonel Charles A. Lindbergh President Coolidge made the presentation in Washington before a notable audience.

In order to aid the Washington State Federation of Women's Clubs to complete their campaign for $30,000, required to save a tract of 63 acres of Douglas fir trees on Snoqualmie Pass Highway, or Sunset Highway, the Board of Trustees voted the Federation a grant of $1000. The area is to be presented to the State of Washington as a State Park.

During 1927 bulletins dealing with the geographical backgrounds of current events were furnished to more than 600 newspapers, and weekly bulletins of timely geographical information were sent to about 35,000 school teachers. The Society also supplied material for press associations. As a part of its educational work a weekly ready-to-print service was supplied to about 1200 daily or weekly papers. Upon request, bulletins relating to the geography of Bible lands and mission fields were sent to about 80 church and Sunday school periodicals and used by them in schools where Americanization work was in progress.

The chief activity of the Society in the diffusion of geographic knowledge is carried on through its official publication, the *National Geographic Magazine*. At the end of 1927 there was a membership of 1,150,000, representing every civilized nation. Officers for the year were: President and editor, Gilbert Grosvenor; vice president and associate editor, John Oliver La Gorce; treasurer, John Joy Edson; assistant treasurer, Herbert A. Poole; secretary, O. P. Austin; associate secretary, George W. Hutchison; general counsel, Edwin P. Grosvenor; chairman committee on research, Frederick V. Coville; assistant editors, William Joseph Showalter and Ralph A. Graves; chief of school service, J. R. Hildebrand. Headquarters are in Washington, D. C.

GEOGRAPHY. See EXPLORATIONS.

GEOLOGICAL SURVEY, UNITED STATES. The U. S. Geological Survey, in addition to its routine duties during the fiscal year of 1927, made a promising start in the coöperative studies of potash deposits by the Departments of the Interior and of Commerce. The Geological Survey was engaged in choosing the sites for tests and analyzing the cores, while the Bureau of Mines handled the drilling operations. The revision of the Leadville, Colorado, monograph was published by the Survey, and was believed to be as notable a contribution to the mining industry as was the original treatise when issued 40 years previously. The first colored geologic map of the State of Oklahoma ever published was issued during the year, and was of great value in the development of the petroleum and other mineral resources of that State, as well as for educational purposes. There was considerable progress in the development of aërial photography in connection with topographic mapping. In Alaska two large and hitherto unexplored areas were studied and mapped, and progress toward a map was made in the compilation of aërial photographs of southeastern Alaska taken earlier by the Navy Department. There was advance in the development of more precise instruments for the study of quantities of water that are annually contributed to underground reservoirs and are available for public use. In the conservation work, supervision under the mineral leasing laws was increased by the issue of 4843 new leases, permits, and licenses —about 20 per cent increase during the year and a greater increase than that of the previous year. The production of coal from leases on public lands increased 25 per cent or more than 2,500,000 tons.

GEOLOGY. Activity in research and exploration was apparent in the record for 1927, and as heretofore the leading influence upon progress must be credited to the organized efforts of governmental bureaus and surveys with their multifarious investigations. Such surveys are concerned largely with economic matters, to be sure, but their functions cannot be confined to any one field or department or be guided strictly by practical ends. Thus, most of the areal mapping which is the basis of our knowledge of structural geology and stratigraphy is performed by national and state surveys. The areal map, however, is quite as essential to certain lines of economic work, like oil and gas exploration, in which the first requisites are precise field observations of rock characteristics and structures. In fact the time-honored division between the scientific and practical phases of geology is hardly recognizable to-day.

SOCIETIES. In his presidential address before the Geological Society of America at Madison, Wis., A. C. Lawson traced the development of the northern Rocky Mountains on the basis of isostasy and elastic deformation of the rock materials. The front ranges of Montana and Alberta between latitudes 44°30′ and 50°, a stretch of about 540 miles, are defined on the east by a system of overthrust faults which probably involve a shortening at the surface of many miles. The disturbance, as is the case with most mountain uplifts, is traceable to the formation of a geosyncline or trough-like depression in which sediments from a proximate area of erosion accumulated, in this instance from the region west of the trough. The period of deposition lasted from early Palæozoic to the close of Mesozoic time, subsidence of the trough floor under pressure of the load having made room for about 40,000 feet of sedimentary material. Relief from the weight occurred periodically by transfer of rock material in the deeper layers to the zone lightened by erosion, so that finally the rigid upper section of the crust became too thin to support the burden. A shear fault was then started along the axis of the trough, the fresh accumulation of sediments was downthrust into the zone of flowage, and folding and crustal shortening resulted which permitted the relief of stress over distances of some hundreds of miles on either side of the break. The western segment appears to have overlapped upon the downthrust eastern part. By overlap and folding the crust was shortened by 20 miles or more. Most of these effects may be referred, according to Lawson, to the elastic rebound of the rocks as they were relieved of stress.

"Palæontology and Human Relations" was the subject of Weller's address before the Palæontological Society at the Madison meeting. The paper suggests new directions of research rather than ascertained facts or principles, pointing out that since life is continuous the origins of human history must be sought in the periods before man appeared. Palæontology provides an array of data about migrations of fauna, influence of environment and other relationships which should be of interest to the student of human progress. These bearings of the science will gain appreciation, no doubt, with the growth of knowledge of early man, which has made significant gains in recent years.

NEW GENERAL WORKS. The publication of a *Geology of the Earth* ranks with the more important general works now in progress. The first volume on Africa was mentioned in The YEAR BOOK for 1926 and later was followed by the first of three volumes descriptive of Europe. The chief editorship was in the hands of Professor Krenkel and the printing was to be executed by a German firm, but the individual volumes were assigned to specialists from different countries. Professor von Bubnoff has charge of the work on Europe, the first volume of which treats of Russia, Finland and the Caucasus. The second volume will cover western Europe, exclusive of the Alpine and Mediterranean regions, which are reserved for the concluding volume.

Rastall's *Physico-Chemical Geology* provides an insight into the later investigations of geological problems on the basis of physical chemistry. This is one of the more promising fields for students of petrology, ore deposition and metamorphic processes, but the work is still largely in its pioneer stages. The Geophysical Laboratory in Washington has set the pace in this department. There is still some question as to how far laboratory methods, limited as they are by the element of time and other circumstances, can be applied to the interpretation of rock history of almost boundless duration and multiform phases. At any rate the results so far obtained are informative, if not always of decisive value.

At the instance of a committee of the National Research Council the preparation of a monographic report, *Treatise on Sedimentation*, has been undertaken by Twenhofel in collaboration with other students. The aim is to supply an inventory of existing information relating to this class of rocks, but naturally the treatment must be selective to a certain extent. Emphasis is put upon American research and conditions, possibly to the detriment of the scope of the volume as inferred from its title. Nevertheless, it supplies an evident need. In a review of the present stage of development of sedimentary studies, the editor expresses the opinion that the subject of environment offers the largest opportunities for fruitful investigation and recommends that a start be made from the consideration of the sites where deposits are now in process of accumulation.

ISOSTASY. Bowie gives preference to the Pratt explanation of isostasy. This is based on the view that the earth's crust extends to a definite depth below sea level, with different densities at different places, the smaller beneath the land and the greater below the sea depressions. The depth of condensation then is the lower limit of the crust. The weakness of this explanation is that the usual values for expansion and contraction of rock materials fail to account for the observed effects of elevation and subsidence. The coefficient of expansion for rocks is of the order of 0.0000117, but since the movement in the depths of the earth must be largely upward the linear coefficient effective in uplift would be about three times the value given. A prism of crustal material 60 miles thick would change its length by 10 feet for each degree (Centigrade) of change in temperature. An increase of 300° C., about the maximum that might be anticipated for a subsidence of 5 or 6 miles, would involve a lengthening of 3000 feet in such a prism. On that basis an uplift like the Himalayas would require the sinking of a crustal layer to nearly 30 miles. Apparently, some other influence than thermal expansion is involved, possibly connected with a chemical or physical change in the rocks like that accompanying recrystallization. Now that isostasy has been generally accepted in principle, the main purpose of future research should be to clear up these features.

ESTIMATES OF GEOLOGICAL TIME. The most illuminating and consistent results in the estimation of the earth's age undoubtedly are those obtained by the study of the radio-active minerals. A review of the data so far obtained indicates that the oldest rocks of the Pre-Cambrian rocks date back to over 1000 million years, with 1500 million years as a possible ultimate figure.

Two series of minerals of which uranium and thorium, respectively, are components have been employed in the calculations. According to Arthur Holmes the ratio derived from the disintegration of uranium is the more dependable because of the greater resistance of the compounds to solvent effects of water. The lead from uranium forms a highly stable uranate, but the lead from thorium minerals does not combine with thorium in a similar way but is likely to be present as a comparatively soluble oxide or silicate. It is interesting to note that uranium lead has an atomic weight of 206 as compared with 207.2 for ordinary lead, a difference which can be used to determine whether all of the lead present is derived from disintegration or has been introduced possibly from outside. The atomic disintegration proceeds by explosive changes in which helium atoms are ejected at different stages and the process comes to rest in the formation of stable lead. From the known rate of helium production, it is calculated that one gram of uranium produces lead at the rate of one gram in 7400 million years. Thorium produces 0.38 gram in the same period. The general formula for estimating the age of the mineral is to divide the percentage of lead found by the percentage of uranium plus 0.38 times the thorium percentage, and multiplying the result by 7400 millions, which gives the age in years. Such incidental changes as are likely to occur tend toward a slight overestimate of the time, for which a correction up to about 10 per cent of the full value may be necessary.

SEISMOLOGY. The modern status of earthquake investigation is well described in Gutenberg's *Grundlager der Erdbebenkunde*, the latest of the treatises on this subject. It contains a description of instrumental seismology, as well as of the theories that have been formulated to account for the origin and transmission of shocks. A study of earthquake frequency by Davison indicates that there is a tendency toward concentration or clustering at recurring intervals. Some of the intervals agree with the 11-year period of sun-spot minima. Other periods of 19, 22 and 33 years, respectively, may be recognized.

The years 1918, 1922 and 1925 represented times of maximum frequency, which will appear again in 1951–58 and in 1980–88. See EARTHQUAKES; SEISMOLOGY.

STRATIGRAPHIC TIME SCALE. No consistent usage is current among geologists in the subdivision of the stratigraphic column. To obviate the confusion inherent in the present lack of uniformity, Ashley proposed to employ intervals of approximately equal value as the primary divisions of time. To these intervals or periods, 15 in all, the same number of rock systems are joined, which are named in order from the base upward; thus, the first period corresponds to the Cambrian system and the fifteenth period to the Quaternary system. Each period is divided again into three epochs and these into "decims," the corresponding rock classes being series and groups. The average thickness of a system is 4500 feet and of a series 1500 feet, although locally they may overrun or fall short of the assigned figures. It is proposed to abolish local distinctions as a basis of classification and to unite all formations that have common elements under the name of the type formation. Whether the scheme would be sanctioned by geologists was still in doubt, but it was destined probably to awaken interest in a matter which needs serious consideration.

MINERAL DEPOSITS. The development of a new department of economic geology seemed to be in progress. It related to the method and technique applicable to the finding of valuable ores or other minerals. The problems, of course, are not of recent origin, but so long as ores could be found on the surface by the methods of the old-time prospector there was little incentive to their investigation. Outcropping deposits of any value are becoming rare, and it is now a question of exploring the deeper zones wherein exploration is much more difficult and expensive.

Various instruments are now available for mineral exploration. They include such types as the dip needle and magnetometer which detect variations in the earth's magnetic field, and which in fact have been in use for many years for locating iron ore. Much more delicate instruments of this type have been perfected that can detect minute variations arising from buried igneous bodies, faults and other structures. Gravitational observations by the pendulum or balance serve to differentiate the ordinary rock materials of average specific gravity from those of lighter or heavier weight. Considerable success has been obtained with them in locating buried oil structures in the Gulf coast region, where the oils accompany deposits of salt and gypsum that are lighter than the country rocks.

Electrical devices seemed to have a promising field in the detection of metallic substances; that is, sulphide and oxide compounds of such metals as copper, zinc, lead and others that occur in rather heavy concentrations. In some instances the orebodies themselves show a difference of potential arising from chemical change, so that only a means of measuring the current is necessary. This is the self-potential method. In other cases currents are set up artificially which in their travel through the ground follow the lines of least resistance, supplied by an orebody if present. The distortions caused by the orebody are reflected on the surface and may be read with suitable instruments and plotted on the map. The instrument observations are not a substitute for geological field work, but a useful adjunct under certain conditions. They are discussed in a recent paper read before the American Institute of Mining and Metallurgical Engineers by President Mason of Chicago University.

The inferences that may be drawn from leached out crops or gossan as to the occurrence of workable copper sulphide ores in depth are set forth in a volume by A. Locke, who has devoted much attention to this subject. Copper sulphides on exposure to the weather oxidize readily to soluble products, so that the outcrop commonly carries very little copper. Any gold or lead in the ore, however, is likely to be retained on the surface. Silver and zinc minerals behave according to conditions; if their gangue carries soluble bases they are likely to be retained, otherwise they may be dissolved and lost. The presence of any of these minerals at the surface, of course, is evidence of possibly valuable ore in depth. The best indicators are residual remnants of the primary ore, even in small amounts, but it is to be noted that such residue does not necessarily carry the same proportions of metals as the deeper part of the orebody.

Wisser described the surface modifications which result from the oxidation of sulphide ores, and their practical interpretation. The loss of sulphur and the leaching effects of ground waters result in shrinkage of the deposit which, if the latter is not too deeply buried, causes surface subsidence directly over the cavity. Shear cracks surround the depressed ground and give a measure of the areal extent of the ore body involved in the shrinkage. Another type of subsidence is by doming of the roof of a cave in which the rocks slab off and settle on the floor, the process continuing until a natural arch forms that is capable of sustaining the load above. This sort of subsidence may occur over caves caused by solution of unmineralized rocks like limestones, but in such case the rock joints are likely to be widened by the circulating waters and the surfaces are smooth and rounded, in contrast with the angular outlines of the rocks involved in oxidation shrinkage and subsidence.

Discoveries of platinum ores of very promising character in the Bushveld and Warteberg districts of the Transvaal have somewhat changed the market situation in that metal. They are the first noteworthy additions to the resources that have been reported in many years, and for the past decade the new metal obtained from Russia and Colombia has barely sufficed to meet the important needs. Vogt states that the larger deposits in the Transvaal are associated with igneous rocks of the norite and dunite type, and probably have formed from concentration of the heavy minerals while the rocks were in molten state. In one occurrence the deposit consists of a quartz vein of undetermined origin. The supplies from such occurrences are more likely to last than the placer accumulations which have been the main support of production in the past.

GEORGETOWN UNIVERSITY. A Roman Catholic institution of higher education at Washington, D. C.; founded in 1789. In the fall of 1927 there were 2575 students enrolled with a distribution as follows: arts and sciences, 1036; medical, 406; dental, 142; law, 488; foreign service, 503. The faculty numbered about 350. The Riggs Memorial Library contained 163,489 volumes, and the Hirst Library, 13,687. There were also individual libraries maintained by the professional schools. During the year an addition to the University Hospital was completed. President, the Rev. Charles W. Lyons, S.J.

GEORGE WASHINGTON UNIVERSITY. A coeducational institution of higher education at Washington, D. C.; founded in 1821. The enrollment for the year 1927–28 was 4899, divided as follows: Graduate school, 408; Columbian College, 2502; engineering, 476; education, 509; medical, 275; law, 688; pharmacy, 41. The summer session had an enrollment of 1460. The faculty numbered 391. The endowment funds amounted to $897,258.38, from which the income for the year was $28,821.44. The total income from all sources was $881,587.35. The number of volumes in the general library was 58,300, in the Law School library, 12,200, and in the Medical School library, 2000. In December, 1927, the University received a gift of $1,000,000 from the Supreme Council of the Scottish Rite Masons, Southern Jurisdiction, to establish a school of government, and plans were made for the operation of the new school at the opening of the autumn semester of 1928. President, Cloyd Heck Marvin, Ph.D., LL.D.

GEORGIA. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,895,832. The estimated population on July 1, 1927, was 3,171,000. The capital is Atlanta.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	3,412,000	1,100,000[a]	$106,700,000
	1926	3,965,000	1,496,000[a]	88,028,000
Corn	1927	3,893,000	54,502,000	44,147,000
	1926	3,817,000	55,846,000	42,063,000
Oats	1927	442,000	9,282,000	6,962,000
	1926	475,000	10,925,000	7,538,000
Hay	1927	825,000	582,000[b]	9,431,000
	1926	540,000	414,000[b]	7,389,000
Peanuts	1927	804,000	220,400,000[c]	8,596,000
	1926	211,000	110,775,000[c]	5,428,000
Tobacco	1927	81,500	59,088,000[c]	11,463,000
	1926	51,900	39,963,000[c]	9,591,000
Potatoes	1927	17,000	1,241,000	2,048,000
	1926	19,000	1,197,000	2,274,000
Sweet potatoes	1927	132,000	10,560,000	7,920,000
	1926	110,000	9,460,000	7,568,000
Wheat winter	1927	125,000	1,150,000	1,782,000
	1926	104,000	1,560,000	2,840,000
Peaches	1927	......	5,948,000	8,023,000
	1926	......	9,400,000	6,920,000

[a] bales, [b] tons, [c] pounds.

Mineral Production. Clay products, raw clay and stone continued to rank as the chief mineral products of the State. Its output of clay products in 1925 totaled $6,369,277; in 1924, $6,032,950. Clay was produced in the quantity of 330,063 short tons in 1925, and of 347,218 short tons in 1924; and to the value of $1,255,166 in 1925, as against $1,214,570 in 1924. Stone production rose to 734,140 short tons for 1925, from 565,630 short tons for 1924; in value, $4,971,493 for 1925, and for 1924 $4,472,628. Barite was produced in 1925 to a total value of $475,618. The total value of the mineral production of the State was, for 1925, $16,503,741; for 1924, $14,496,610.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Dec. 31, 1926, were $19,453,655; their rate per capita was $6.20. They included $5,390,093 apportioned for education and greatly increased payments to Confederate veterans. Totals not included above, of $1,380,402 for interest payments and of $7,749,740 for permanent improvement outlays, brought the aggregate of State expenditure to $28,583,797. Of this $9,306,086 was for highways; $2,366,557 being for maintenance and $6,939,529 for construction.

Revenue receipts were $25,726,743; or per capita, $8.20. Of their total, property and special taxes yielded 26.9 per cent, attaining a per capita rate of $2.20. Earnings of departments and compensation paid the State for officials' services supplied 9.2 per cent of the revenue; 39.7 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sale tax. Net State indebtedness on Dec. 31, 1926, was $9,370,373, or $2.99 per capita. Property subject to ad valorem taxation had a total valuation of $1,262,885,965. State taxes levied were $6,314,430, or $2.01 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 6,931.86. No new construction in the course of the year was reported.

Education. The appropriation of revenue to the expected yearly total of a million or over for aid to the poorer school districts, so as to equalize school standards, was accompanied by an increase of about $750,000 in the State support for institutions of higher learning. The school population of the State, in 1923, the latest year available, was given as 900,352. In 1926 there were enrolled in the public schools 692,907 pupils, of whom 614,386 were in the elementary schools and 75,617 in high schools. Expenditures for education in 1926 totaled $18,536,368. Salaries of teachers averaged $648.46.

Charities and Corrections. The chief of the State charitable and correctional institutions were a State Training School for Boys, Confederate Soldiers' Home, State Sanitarium, Training School for Mental Defectives, Academy for the Blind, School for the Deaf, and State Tuberculosis Sanitarium. Patients in the State hospital for mental disease on Jan. 1, 1927, according to the statistics of the U. S. Department of Commerce, numbered 4848; first admittances to the hospital numbered 954 in 1926.

Legislation. The Legislature met in regular session in June. It enacted a law for the preservation of racial integrity among the inhabitants, which was signed by Governor Hardman, but was not put into effect, for lack of an appropriation for the purpose. The measure required the immediate registration of every man, woman and child in the State, and the formation of a card index, containing data on the descent and race of the registered persons, to which reference must be made when persons should apply within the State for marriage licenses. The law further prohibited the issuance of marriage licenses until after the examination of the cards relating to the applicants. A measure known as the Neill act was passed, providing that revenues until then received and used directly by any State department or agency should, from Jan. 1, 1928 on, be paid directly into the State treasury, and should be withdrawn therefrom only under warrant, in accordance with an appropriation act. Exemptions, however, were provided, notably on behalf of the Highway Department, the Banking Department and the educational agencies. Like Alabama and Florida, Georgia enacted a measure to provide State money to equalize educational facilities; a half cent a gallon on gasoline and a cent a gallon on kerosene were set aside to provide a minimum of $1,000,000 to assist schools, chiefly in the rural areas.

Political and Other Events. Governor Lamartine G. Hardman took office June 25. Atlanta voted May 25 on the question of adopting a charter providing government by the city manager system. It was reported that an experimental 10-acre orange grove cultivated by M. B. Lane at the Lebanon plantation near Savannah yielded its first commercial crop of Georgia grown oranges in the autumn. The American Forestry Association offered Georgia the sum of $10,000 to be expended in educating the people of the State as to the benefits of forest conservation, on condition that a like sum should be raised in Georgia. The State Supreme Court in two successive actions declared void the portion of the zoning regulations of the city of Atlanta which forbade the building of shops in residential areas. Atlanta acquired, December 22, 136 acres to form a park of the name of Peachtree Memorial Park, and an additional 370 acres for Perkerson Park and 107 acres for Collum Park. The State statute providing the electric chair as the method of capital punishment was upheld April 20 by a decision of the State Supreme Court rendering this punishment applicable to 11 persons then awaiting execution.

Officers. Governor, L. G. Hardman; Secretary of State, S. G. McLendon; Attorney-General, George M. Napier; Treasurer, W. J. Speer; Auditor, S. J. State; Comptroller-General, W. A. Wright; Superintendent of Education, M. L. Duggan (appointed to fill unexpired term of Fort E. Land, deceased); Commissioner of Agriculture, Eugene Talmadge; Commissioner of Commerce and Labor, H. M. Stanley.

Judiciary. Supreme Court: Chief Justice, Richard B. Russell; Associate Justices, Marcus W. Beck, Samuel C. Atkinson, H. Warner Hill, S. Price Gilbert, James K. Hines.

GEORGIA (GEORGIAN SOCIALIST SOVIET REPUBLIC). One of the three Transcaucasian republics that emerged after the Russian Revolution of 1917. After 1918 it was an independent republic; since 1921 it has been known as the Georgian Socialist Soviet Republic, and, with Armenia and Azerbaijan, forms the Transcaucasian Federal Republic which is affiliated with the Union of Soviet Socialist Republics (See Russia). Georgia is situated in Transcaucasia between the Black and Caspian Seas and is bounded on the north by the Caucasus, on the east by the republic of Azerbaijan, and on the south and southwest by Armenia and Turkish territory. Capital, Tiflis. Area, 39,000 square miles; population, according to the census of 1926, 2,621,019. The chief cities with their populations are: Tiflis, 279,000; Kutais, 85,151; Sukhum, 61,974; and Poti, 20,741. At the end of 1925 there were 211,210 pupils attending the public schools, including 1600 students in the higher educational institutions. The chief pursuit is agriculture, which engages about 90 per cent of the people. The methods are very primitive. The large estates have been divided among the peasants, the minimum allowance for any one family being about 17 acres. The chief product is corn, but vine-growing is carried on extensively, and the country is also rich in fruits. Silk production and bee-keeping are long established activities. The country has vast possibilities for cattle-breeding and there were about 12,000,000 domestic animals. The chief mineral production is that of manganese, around Tchiaturi, where the greatest deposits of this mineral in the world are found. Other mineral products are naphtha, coal, copper ore, lead, and iron ore. All the basic industries were nationalized by the Soviet régime. The railways of the republic, which are all state-owned, totaled 970 miles. During 1927 a line from Akhal-Senaki along the Black Sea coast, through Sukhum to Tuapse, was being constructed.

GEORGIA SCHOOL OF TECHNOLOGY. A State institution of higher education at Atlanta, Ga.; founded in 1888. For the autumn of 1927 the total number of collegiate day students was 2114. The registration for the summer school of the year was 533. The number of members of the faculty in the autumn of 1927 was 153. The endowment of the institution amounted to $200,000, and the income from appropriations and fees was $496,214. The library contained 23,000 volumes. During the year a new dining hall, to cost $130,000, was under construction. President, Marion Luther Brittain, LL.D.

GEORGIA, University of. A State institution of higher education at Athens, Ga.; founded in 1801. In the autumn of 1927 there were 1576 students enrolled. The summer session was attended by 2512 students. The faculty numbered 93. The productive funds of the university amounted to $425,000, and the income for the year from the State and other sources was $300,000. The library contained 61,000 volumes. During the year the New Commerce and Journalism Building was under construction at a cost of $215,000. Chancellor, Charles M. Snelling, Sc.D.

GERHARD, William Paul. American sanitary engineer, died at Scarsdale, N. Y., July 8. He was born at Hamburg, Germany, July 30, 1854, and after graduating at the Polytechnic School at Karlsruhe, Baden, in 1875 did military duty before engaging in practice as a civil engineer in Hamburg. He went to the United States in 1877 and, settling in St. Louis, became assistant engineer in the department of public works of that city. He was engaged from 1880 in the engineering office of Captain James B. Eads, and from 1881 to 1883 was chief assistant engineer to Colonel George E. Waring at Newport, R. I. After that time he was active in consulting practice as a sanitary expert, and wrote extensively in this field. From 1885 to 1886 he was the editor of *Building,* and from 1892 to 1899 was sanitary engineer on the staff of the city architect of New York. His publications include: *House Drainage and Sanitary Plumbing* (1881; 10th ed., 1902); *The Disposal of Household Wastes* (1890); *Theatres, Their Safety from Fire and Panic, Their Comfort and Healthfulness* (1900); *The Sanitation of Public Buildings* (1907); *Modern Baths and Bath Houses* (1908); *Guide to Sanitary Inspections* (4th ed., 1909); *Sanitation and Sanitary Engineering* (1909); *Flies and Mosquitoes as Carriers of Disease* (1911); *Public Comfort Stations; The A B C of Sanitary House Drainage;*

The Water Supply of Country Homes; and several works in German.

GERMAN COLONIES. During the World War all the overseas possessions of Germany in Africa, the Pacific Ocean, and the Far East were captured by the Allies. In Africa they included German East Africa, German Southwest Africa, Kamerun, and Togo. All of these were divided between Great Britain and France, Southwest Africa being annexed to the Union of South Africa. In the Pacific were New Guinea, including Kaiser Wilhelm's Land, Bismarck Archipelago, German Solomon Islands, Nauru, Caroline Islands, Marshall Islands, Marianne or Ladronne Islands (with the exception of Guam), and German Samoa. In the Far East there was only the German possession of Kiaochow. The total area of the German colonies was estimated at 1,140,117 square miles and the total population was estimated at 13,258,000. See principal titles mentioned above, also Tanganyika Territory, and Kenya Colony.

GERMAN EAST AFRICA. A former German colony, now administered by Belgium and Great Britain. It is located on the coast of Africa and extends from the Indian Ocean to Lakes Victoria Nyanza, Tanganyika, and Nyassa, lying to the south of Kenya Colony and Protectorate. After the War it passed under the control of Great Britain and Belgium under mandates of the League of Nations. The Belgium share included the province of Ruranda Urundi, which is administered by a royal commissioner of the Belgian government with headquarters at Kigali. The British portion is known as Tanganyika Territory (q.v.).

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. See Evangelical Synod of North America.

GERMAN LITERATURE. The German books of the year 1927 did not show much change in mood and manner from those of the preceding year. The young generation which came to the fore on the tide of the War was very prolific; but whether its products were of a quality able to survive the painful period of transition and readjustment through which post-war Europe was passing, time only can tell. Still there was a number of interesting first books and especially first plays to be recorded, and one or two of verse and fiction, but criticism and history, always largely cultivated, showed a decrease in noteworthy works.

Drama. Among the newcomers most favorably received on the stage during the year were Hanns Johst, whose semi-historic *Thomas Paine* was acclaimed at Cologne; Wolfgang Langhoff with his three-act comedy *Knockout,* representing the contrast between an intellectual and an athletic type of man, with a woman between them; Emil Buri with his *Tim O'Mara;* Leo Larna with the delightful three-act comedy *Die Friedenskonferenz,* and Franz Müller-Frerich with his Norse tragedy, *Helgar.* An interesting work is Franz Theodor Czukor's *Die Stunde des Absterbens,* in which heaven and hell in the last hour of an egotist fight for his soul, the solution of the conflict being that he cannot be sent to hell, since he has always been of it and in it. Friedrich Wolf's *Der Mann im Dunkel* is also a creditable first play. Bert Brecht's *Im Dickicht der Städte* is a drama of Chicago's Chinatown which has had some success on the stage.

Bruno Frank's *10,000* is a play which was compared with Schiller's *Kabale und Liebe.* Erich Ebermayer's *Kaspar Hauser* is called a dramatic legend, Alfred Brust's *Cordatus,* a confession. Fritz von Unruh's *Bonaparte* was more unfavorably discussed than any of his former works. Ernst Toller's new post-war play, *Hopla, wir leben,* deals with a man, who, like the author himself, sentenced to death for participation in a revolution, is suddenly pardoned and becomes insane. Like many works of the young generation it is more intellectual than poetic, more labored than inspired. A figure to be watched with interest is Max Mell, who cultivates a field all his own, religious drama, and as the author of the *Wiener Kripperl* and other religious folk-plays of distinction has already made a name for himself. His latest work is a mystery play, *Apostelspiel.*

Of the older writers the popular Wilhelm Schmidtbonn has produced *Der Pfarrer von Mainz,* Emanuel Bodmann *Der Ring mit den Karfunkelsteinen,* a tragedy more suited for reading than staging. Ludwig Fulda has burlesqued the movie plays in *Filmromantik* and Fritz Philippi has written a tragi-comedy, *Der Paragraphenteufel,* the scene whereof is a penitentiary.

Fiction. The novelist who achieved perhaps the greatest success among those of his generation was Frank Thiess, whose *Abschied vom Paradies* followed close upon *The Gate of Life,* as his previous work was called in the translation. As his work and that of others of his generation deal with the problems of German youths, so a number of recent novels treat the problems confronting German girlhood. The problems may not be limited to that country, but they are more discussed in German fiction than elsewhere. Among the authors, Gabriele Reuter, who thirty years ago stirred up discussion with *Aus guter Familie,* contributed the novel called *Tochter.* Ernst Lothar's *Drei Tage und eine Nacht* belongs to that group.

Of inferior quality, reminiscent of certain novels which created a sensation a generation ago, was M. J. Breme's *Vom Leben getötet,* supposed to be the confessions of a child. A newcomer, W. E. Süsskind, has also in the story of an individual effectively condensed the problems of his whole generation. An interesting story is Hannah Richter's *Das Wilde Herz,* based upon the life of Wilhelmine Schröder Devrient. Carry Brachvogel's new novel is *Die Schauspielerin.* Paul Wiegler's *Wie sie starben* is a volume of stories of poets and women, and Paul Friedrich's *Ewige Mächte* contains three artist stories. Italy, ever favored by German writers, is the background of Georg Hermann's *Tränen um Modesta Zamboni* and Alfred Neumann's *Rebellen,* a forceful story of Tuscany a hundred years ago.

Josef Ponten's *Studenten von Lyon* is a strong story of the religious struggles in Calvin's time. Hermann Stegemann's *Jacobaea* is the story of a heroic girl of the Thirty Years' War, Oscar Anwand's *Das deutsche Morgenrot* a novel of the time of Arndt and Stein; Heinrich Schüler's *Unterm Kreuz der Südsee,* a story of Brazil's past, Herbert Eulenburg's *Um den Rhein,* Ernst Zahn's *Das Brettspiel des Lebens,* Alexander Castell's *Der Anfang der Liebe,* Emil Ertl's *Die Maturafeier,* Felix Salten's *Overbeck,* Karl Scheffler's *Der junge Tobias,* Hermann Hesse's *Der Steppenwolf,* Arthur Schnitzler's

Spiel im Morgengrauen, in the English translation *Dawn*, Willy Seidel's story of Java, *Schattenpuppen*, Hans Knobloch's *Der tausendjährige Tag*, Clara Viebig's story of German vintners, *Die goldenen Berge*, Max Dreyer's *Das Sympathiemittel*, Raoul Auernheimer's *Die rechte und die linke Hand*, Rudolf Hans Bartsch's *Die Verliebten und ihre Stadt*, Rudolf Greinz's *Das Paradies der Philister*, Robert Hohlbaum's *Die Raben des Kyffhauser*, Jacob Schaffner's *Das Verhängniss*, Diedrich Speckmann's *Ludinghoff*, Rudolf Huch's *Das Spiel am Ufer*, Karl Hans Strobl's *Erasmus mit der Wünschelrute*. Timm Kroger's short stories *Ein schlechter Mensch* and *Eine stille Welt*, the latter a charming book of moon and heath. Friedrich von Gagern's *Der tote Mann*, a story of the Indian, and Georg von Ompteda's *Der jungfrauliche Gipfel*, a novel of Alpine sport, all prove that post-war conditions had not impaired the productivity of the older generation of German novelists.

POETRY. Josef Ponten's *Römisches Idyll* is a lyric epic of distinction, while Alfred Doeblin's *Manasis*, an epic. Ernst Bertram's *Der Rhein*, Rudolf Heuen's *Die Pansflöte*, and Albert Tachoff's volume of notes and poems, lyric expressions of a strong artistic temperament, are noteworthy publications of the younger group. Among the older poets Christian Morgenstern's *Mensch-Wanderer* covering the period from 1887 to 1914, Wilhelm von Scholz's *Das Jahr*, Jacob Schaffner's *Der Kreislauf*, Agnes Miegel's collected verse and Robert Faesi's *Der brennende Busch*, a book of strong character, deserve mention.

BIOGRAPHY, LETTERS. Walter Rathenau's new letters deserve a place of honor, and are appropriately supplemented by Carl Eberhard's *Freundschaft im Geiste*, his correspondence with Rathenau. Fritz Bergemann's *Bettina's Leben und Correspondenz mit Goethe*, and Flodoard von Biedermann's *Correspondenz Josef Ungers mit Goethe* are interesting. Arthur Kutscher's *Frank Wedekind*, Maria Waser's *Josef Victor Widmann*, Hugo Ball's *Hermann Hesse*, Willibald Köhler's *Hermann Stehr*, are valuable contributions to the more intimate history of contemporary German letters.

Alfons Matthes wrote a charming tribute to Goethe's mother, *Frau Aja*, and her philosophy of a merry life. Isolde Kurz wrote a memoir, *Mein Mutter*. Noteworthy biographies are Witkop's *Tolstoi*. Karl Federn's *Richelieu*, Christoph Schrempf's *Sören Kierkegaard*, Georg Ellinger's *Angelus Silesius* and Curt Elwenspoek's *Charlotte von Mexico*. A sympathetic study of the French poetess *Marcelline Desbordes-Valmore* came from the pen of Stefan Zweig, the Austrian poet whose book on Verhaeren is familiar to American readers. A unique diary is Hugo Ball's *Die Flucht aus der Zeit*.

LITERATURE. Works on literature proper were less numerous than in previous years. Foremost among them is the new revised edition of Prof. Albert Soergel's monumental and sumptuously illustrated work, *Dichtung und Dichter der Zeit*. Hermann Köster's *Geschichte der deutschen Jugendliteratur*, Walter Rhem's *Geschichte des deutschen Romans*, Heinrich Spiero's *Die Heilandsgestalt in der deutschen Dichtung*, Gustav Diercks's *Portugiesische Gedichte*, Bernhard Fehr's *Englische Prosa 1880–1927*, Karl Vossler's *Italienische Literatur*, and Harald Beyer's *Norwegische Literatur*, Heinrich Kempinsky's *Erlebte Dichtung*, Emil Ermatinger's *Krisen und Probleme der neuen deutschen Dichtung* and the book of Arthur Friedrich Binz on poets and poetry, *Von Aufbruch und Untergang*, are full of suggestion. Walter Jablonski contributed to Goethe literature *Vom Sinne der Goethe'schen Naturforschung*, Karl Busse wrote a study of *Hermann Sudermann* and Walter Allerhand one on *Tolstoy als Dramatiker*.

HISTORY. Books on history considerably decreased in number. The most important were Ernst Heilborn's history of the Schinkelperiod, *Zwischen zwei Revolutionen, 1789–1848*, Egon Friedell's *Kulturgeschichte der Neuzeit*, and Johann Bühler's *Deutsches Geistesleben im Mittelalter*.

TRAVEL. Franz Kuypers wrote *Rom—Zeiten, Schicksale, Menschen*, which was said to rival the works of Winckelmann and Gregorovius. Other works of travel were Georg Lichev's *Italien und wir*, Victor Ottmann's *Das Wunderland am Nil*, dealing with Egypt and Palestine, Arnold Hottinger's *1001 Inseln*, a book of Polynesia and New Zealand, Manfred Schneider's *Wanderfahrten durch Spanien*, Peter Panter's *Ein Pyrenndenbuch*, Friedrich von Gagern's *Das Grenzenbuch*, dealing with pathfinders, chiefs and "Leatherstockings," Richard Bermann's *Das Urwaldsschiff*, a story of the Amazon, Victor Pietschmann's *Eis und Palmen*, Ludwig von Kohler's *Belgium*, and Kasimir Edschmid's clever chats on *Basken, Stiere, Araber*.

MISCELLANEOUS. A number of interesting publications deal with music: Ferdinand Pfohl's and Bernt Bartels's books on *Beethoven*, Richard H. Stein's *Tschaikowsky*. Kurt von Wolfurt's *Moussourgskij*, Adolf Weissmann's *Die Entgötterung der Musik*, and Paul Bekker's *Organische und mechanische Musik*. Among the art books one especially remarkable is Dr. Luitpold Dussler's *Signorelli*. Georg Anschutz wrote a fascinating book on *Farbe, Ton, Form*. Eugen Holländer's *Aesculap und Venus* is a history of art and customs seen from the physician's standpoint. Kurt Liebmann's *Dionysius Apollo* is stimulating reading. Eduard Wechsler's *Esprit und Geist* is an attempt at understanding the difference between the French and the German minds. Ernst Howald's *Mythos und Tragödie*, and Arthur Schnitzler's *Der Geist im Wesen und der Geist in der That* are rich in suggestion. Philosophy is dealt with from various angles in Heinrich Hillmund's *Wesen der Welt*, Harry Schumann's *Wege zum All*, Arthur Stein's *Pestalozzi und die Kantische Philosophie*, Friedrich Wolters's *Erde, Gewächs und Weltall*, Kurt Singer's *Platon der Grunder*, Kurt Liebmann's new volume of *Das kosmische Werk*, and Hannah *Weber's Die Weltdenker des Ostens*. Glances into the future are suggested in Keyserling's *Wiedergeburt*, Fritz Wittels's *Die Befreiung des Kindes*, and Rudolf Pannwitz's *Das neue Leben*, and were timely in this period of reconstruction. Emmy Hennings wrote a book entitled *Der Gang zur Liebe*, dealing with cities, churches and saints. René Fülop-Miller published *Lenin und Gandhi*. Emil Lucka showed insight into the soul of Spain in *In Brunst und Düsterniss*. Hans Ludwig Helch delved into Hebrew mysticism in his book *Das Gespenst des Golem*. Egon Kisch wrote on *Zaren, Popen, Bolsheviken*, Alfred Peters on *Psychologie des Sports*. A delightful book was Alfred Kerr's volume of aphorisms, reflecting the distinguished critic's view of life and sense of humor, *Es sei wie es wolle, es war doch so schon.*

Of books on America that by Kurt von Schlozer, ambassador to Mexico, 1871 to 1881, was the most valuable. Others were by O. E. Lessing, M. J. Bonn and Carl Brinckmann.

Translations were too numerous to record. America was represented by many popular and well distributed works, covering a very wide field from the playwright Eugene O'Neill to Judge Lindsey.

NECROLOGY. Teweles, Heinrich, editor and playwright, died August 10. Abert, Hermann, son of J. J. Abert, noted musician, himself writer on music, died August 16. Achleitner, Arthur, author of Alpine fiction, died September 15. Chamberlain, Houston Stewart, writer on music and literature, died at Bayreuth in January. Bienenstein, Karl, critic, died February 27. Mahn, Paul, editor, novelist, died May 3. Wagner. Hermann, essayist, died July 7. See PHILOLOGY, MODERN.

GERMAN NEW GUINEA. This name was applied to all the German territories in the western Pacific (See GERMAN COLONIES). They were distributed by the Treaty of Versailles as follows: Those north of the Equator, viz., the Caroline, Marshall, Palau, and Ladrone Islands, to Japan, under mandate; those south of the Equator, viz., the Bismarck Archipelago, the German Solomon Islands, and former German possessions on the island of New Guinea, to Australia, under mandate of the League of Nations. All German possessions grouped under the name of German New Guinea were formerly administered from Rabaul, the capital, in the northeastern part of New Guinea.

GERMANY. A federal republic of Central Europe, constituted after the abdication of Emperor William II on Nov. 9, 1918; and organized under the constitution of July 31, 1919, by the National Assembly at Weimar, elected in January of that year; formerly the German Empire; bounded on the north by the Baltic Sea, Denmark, and the North Sea; on the west by the North Sea, the Netherlands, Belgium, Luxemburg, and France; on the east by Austria, Czechoslovakia, and Poland; and on the south by Switzerland, Austria, and Czechoslovakia. The German Empire consisted of 25 Federal States and the Imperial Reichsland; the Federal Republic consists of eighteen republics. Capital, Berlin.

AREA AND POPULATION. At the census of Oct. 8, 1919, the area of the republic, including the Saar Valley, was 182,213 square miles and the population, 59,852,682, of whom 28,496,419 were males and 31,356,263 females. The accompanying table from the *Statesman's Year Book* for 1927 gives area and population according to the census of June 16, 1925.

States of the Empire	*Area English sq. miles*	*Population June 16, 1925*	*Pop. per sq. mile 1925*
Prussia [a]	112,628	38,054,172	338
Bavaria [a]	29,343	7,379,594	251
Wurttemberg	7,532	2,579,453	342
Baden	5,819	2,312,462	397
Saxony	5,789	4,996,138	863
Mecklenburg-Schwerin	5,069	674,411	133
Thuringia	4,527	1,609,300	355
Hesse	2,970	1,347,295	454
Oldenburg	2,480	545,749	220
Brunswick	1,418	501,675	354
Mecklenburg-Strelitz	1,131	110,871	98
Anhalt	888	351,485	396
Lippe	469	163,577	349
Waldeck	408	55,750	137
Schaumburg-Lippe	131	48,044	367
Hamburg	160	1,152,489	7,203
Lubeck	115	127,971	1,113
Bremen	99	338,846	3,423
German Republic [a]	180,976	62,348,782	345
Prussian Saar District [b]	574	671,748	1,170
Saarpfalz [b]	164	98,252	599
Saar District (altogether)	738	770,000	1,043
German Republic (with Saar District) [b]	181,714	63,118,782	347

[a] Excluding the Saar.

[b] The figures for the population of the Saar District, in which the census of 1925 could not be taken, are estimates.

The losses under the Treaty of Versailles (June 28, 1919) were as follows: (1) Alsace-Lorraine, returned to France, 5604 square miles, with a population of 1,874,014; (2) a part of Eastern Silesia, the larger part of West Prussia, and a part of Upper Silesia (by plebiscite), ceded to Poland, 17,787 square miles with a population of 3,853,354; a part of Upper Silesia, ceded to Czechoslovakia, 110 square miles and 45,396 population; Eupen and Malmedy, to Belgium, 386 square miles and 60,924 population; Memel to the Allies, 1057 square miles and 140,746 population; Danzig, to the Allies, made a free city, 794 square miles and 330,252 population. Provision was made to determine the status of certain regions by plebiscite: The Saar Basin, area 742 square miles and 652,818 population, was to be under the League of Nations for 15 years, then to determine its destiny by plebiscite; Schleswig to decide between Germany and Denmark; regions of the southern part of East Prussia, in West Prussia, and in Upper Silesia. The plebiscite for Schleswig was held in March, 1920, when the northern zone, comprising 1537 square miles and a population of 166,895, decided for Denmark and was ceded to that country.

The plebiscite in Upper Silesia, which was held in March, 1921, gave a majority for Germany, but the territory was divided according to the vote, and 1255 square miles with a population of 891,669 was annexed to Poland.

In 1925 the movement of population was: Births, 1,336,327; deaths, 788,519; marriages, 482,792; divorces, 35,499. In 1926, 65,281 German nationals emigrated from the country as compared with 62,828 in 1925. Of the number 51,145 emigrated to the United States. The cities with more than 500,000 inhabitants at the census of 1925 were: Berlin (including suburbs), 4,013,588; Hamburg, 1,079,092; Cologne, 698,064; Munich, 680,704; Leipzig, 679,322; Dresden, 618,684; and Breslau, 554,801.

EDUCATION. Elementary education is compulsory throughout Germany between the ages of six and 14. The latest educational statistics are those gathered in the school census of 1922, when there were 52,763 public elementary schools with 143,933 male teachers and 49,013 female teachers and 8,894,486 pupils. There were also 675 private schools of a similar nature with 35,584 pupils. In the same year there were for boys, 515 Gymnasia, with 10,051 teachers and 152,367 pupils; Realgymnasia, 322, with 6678 teachers and 115,615 pupils; Oberrealschulen and Realschulen, 506, with 9404 teachers and 184,175 pupils; for girls, high schools, 824, with 14,852 teachers and 299,285 pupils. There are ten fully equipped technical schools, with the power of granting degrees. These had 2054 teachers and 21,216 students.

The accompanying table, from the *Statesman's Year Book* for 1927, shows number of universities, with the date of founding, and the number of professors and teachers and students in 1925:

Universities	*Professors and teachers*	*Students*
Berlin (1809)	589	6,938
Bonn (1786–1818)	242	2,438
Breslau (1702)	231	2,541
Cologne (1388–1918)	155	4,536
Erlangen (1743)	102	1,289
Frankfort (1914)	207	2,544
Freiburg (1457)	149	3,020
Giessen (1607)	159	1,388
Gottingen (1737)	203	2,389
Griefswald (1456)	130	885
Halle (1694)	193	1,790
Hamburg (1919)	253	2,075
Heidelberg (1385)	212	2,516
Jena (1557)	174	2,015
Kiel (1665)	164	1,601
Konigsberg (1544)	191	1,445
Leipzig (1409)	310	4,400
Marburg (1527)	150	1,995
Munich (1472–1826)	344	7,068
Münster (1780)	149	2,202
Rostock (1419)	108	831
Tübingen (1477)	150	2,478
Würzburg (1582)	125	2,124
Total	4,690	60,458

The students were divided among the several faculties as follows: Theology, 3556; Jurisprudence, 25,658; Medicine and Dentistry, 8947; Philosophy, 10,302; Mathematics and Natural Science, 11,666; Auxiliary Science, 329.

PRODUCTION, INDUSTRIES, ETC. At the beginning of June, 1926, the soil of Germany was divided as follows: Arable land, 51,182,969 acres; grass, meadows, and pasture, 19,845,542; vineyards, 201,228. The accompanying table shows the area under the principal crops in acres and yields in metric tons (one metric ton equals 2204 pounds) in 1925 and 1926:

	Acreage		*Produce (metric tons)*	
	1925	*1926*	*1925*	*1926*
Wheat	3,875,541	3,997,140	3,217,266	3,058,408
Rye	11,763,509	11,789,042	8,062,882	7,495,786
Barley	3,582,551	3,707,096	2,599,076	2,620,335
Oats	8,620,730	8,677,345	5,584,545	6,569,568
Potatoes	7,013,960	6,891,000	41,718,360	30,031,000
Sugar beets	1,006,381	1,006,000	10,325,893	10,495,000
Hay	19,079,959	1,853,000	33,163,250	33,537,000

In 1926 the area devoted to grapes was 182,395 acres, the wine yield 21,765,524 gallons; area devoted to tobacco, 16,500 acres, yield (1925), 19,006,700 kilos; sugar production in 1925–26, 1,605,960 tons. The hop production in 1926 was 252,300 metric tons. The number of domestic animals in Germany on Dec. 1, 1926, was: Horses, 3,868,623; cattle, 17,195,309; sheep, 4,083,934; swine, 19,412,489; goats, 3,477,522. The minerals include coal, lignite, iron ore, zinc ore, lead ore, copper ore, rock salt, and potash. In 1926 the output of coal was 145,129,305 tons; of lignite 139,263,124 tons; of coke, 26,366,663 tons. The total output of pig iron was 9,643,519 tons; of ingot steel, 4,500,000 tons.

In October, 1927, the U. S. Bureau of Foreign and Domestic Commerce published the results of a survey of the 1926 statements of 4916 German corporations having a total capital stock of 10,874,000,000 marks and total assets of 32,587,000,000. These 4916 companies account for about two-thirds of the total capitalization of German corporations. Of these reporting corporations, 3388, having a total capitalization of 9,826,000,000 marks, showed net profits of 785,000,000 marks or 8 per cent. This prosperous group of concerns, moreover, actually declared dividends totaling 501,000,000 marks—an average of 5.1 per cent. Approximately 384,000,000 marks, therefore, were carried to surplus or to reserves against depreciation—more than twice as much as the total losses of the less fortunate corporations. Only 1528 corporations suffered net losses. The capital stock of the losing corporations totaled only 1,048,000,000 marks, but their net losses aggregated 189,000,000 marks, an average of 18 per cent. It would appear that the companies that lost money were mostly small joint-stock companies. Their average capitalization was only about 686,000 marks; whereas the average capitalization of the prospering concerns was 2,900,000 marks. Of the 24 business groups, only two actually lost money—"woodworking and furniture" and "real estate, land and settlement" companies. Most of the non-reporting companies, approximately 6000 in number, were small concerns (with the notable exception of the United Steel Works), and their income statements would have detracted somewhat from the rather good results shown by the reporting companies.

COMMERCE. In the general economic revival which characterized the year 1926 in Germany, one of the most noteworthy features was the radical reduction of the unfavorable trade balance. The trend of foreign trade improved to such an extent throughout the year that there existed some doubt, up to the very last month, as to whether the volume of imports would exceed that of exports or conversely. The results achieved are best illustrated by the fact that the unfavorable commodity balance in 1926 amounted to only 133,000,000 marks, whereas in 1925 the commodity imports were higher than the exports by 3,630,000,000 marks. These deficits would naturally be somewhat larger if the value of the trade in precious metals were added, inasmuch as imports of gold and silver into Germany are always larger than exports from that country.

From the German standpoint, the most encouraging feature in cutting of the adverse balance was the fact that the result achieved represented not only a very considerable reduction in the volume of imports, but at the same time a material gain in the value of German goods sold to foreign countries. As a matter of comparison, the value of German trade for the two years, divided according to main commodity groups, is shown in the following table:

GERMAN FOREIGN TRADE IN 1925 AND 1926
[*In millions of marks, each worth $0.238*]

Commodity group	*Imports*		*Exports*	
	1925	*1926*	*1925*	*1926*
Live animals	122	125	15	11
Foodstuffs and beverages	4,032	3,579	517	476
Raw materials and semi-manufactures	6,269	4,924	1,640	2,363
Finished goods	2,005	1,323	6,626	6,968
Total commodity trade	12,428	9,951	8,798	9,818
Gold and silver	718	615	40	36
Grand total	13,146	10,566	8,838	9,854

Some of the principal items which enter into Germany's foreign trade and which are responsible, in varying degrees, for the general improvement are listed below:

PRINCIPAL ITEMS IN GERMAN FOREIGN TRADE IN COMMODITIES, 1925–26
[*In millions of marks*]

Imports	*1925*	*1926*
Foodstuffs:		
Wheat	471	585
Barley	183	288
Rice	154	118
Tropical and other fruits	362	321
Coffee	228	253
Meats, bacon and sausage	285	253
Butter	372	330
Eggs	276	234
Lard and oleomargarine	189	182
Raw materials:		
Wool	656	576
Cotton	886	598
Flax, jute, etc.	232	147
Calfskins and hides	238	173
Fur hides	125	103
Tobacco	260	144
Oil fruits and seeds	610	611
Oil cake, etc.	107	126
Timber	462	297
Rubber, guttapercha, etc.	184	126
Mineral oils	208	222
Iron ores	234	176
Raw copper	337	226
Finished goods:		
Woolen yarn	262	150
Cotton yarn	374	168
Cotton goods	228	78
Leather	82	55
Chemical and pharmaceutical products	91	70
Iron goods	154	138
Automobiles and motor cycles	69	52
Total	12,428	9,951
Exports		
Foodstuffs:		
Wheat	47	69
Sugar	50	60
Raw materials:		
Wool	138	130
Cotton	124	130
Coal, coke, etc.	415	891
Pig iron	38	67
Sulphate of ammonia	85	113
Finished goods:		
Wool yarn	92	92
Silk and artificial silk goods	166	164
Wool goods	255	295
Cotton goods	440	424
Clothing	95	105
Other textiles	110	102
Leather	206	212
Footwear, etc.	91	82
Furs	147	155
Rubber goods	95	98
Paper and paper goods	308	385
Paints, varnishes, and lacquers	278	293
Chemicals and pharmaceuticals	872	896
Chinaware	126	132
Glass and glassware	175	187
Iron goods	1,241	1,371
Copper goods	199	227
Machinery	641	689
Electrotechnical equipment	269	298
Musical instruments, phonograps, etc.	122	107
Toys	112	106
Total	8,798	9,818

The extraordinary reduction in value of imports into Germany may be attributed fundamentally to the fact that neither 1925 nor 1926 could be called a normal year, notwithstanding the material improvement which the latter witnessed in Germany's general situation. Despite the state of depression which pervaded all branches of German industry throughout 1925, there was a tendency to accumulate large stocks of goods, which resulted in a record figure for imports. This action was due to three principal causes: First, the year 1925 brought an end to the provisions of the Versailles treaty relative to special customs treatment of the goods of certain nations, thus enabling the German government to enter immediately upon the negotiation of important commercial treaties; second, a new tariff law of decidedly protective nature became effective in October of that year; finally, advantage was taken of the credits obtained in foreign countries.

The state of industrial depression carried over into 1926 and remained unimproved, at least during the first five or six months of the year. This was accompanied by a material reduction in the purchasing power, while the stocks which had been accumulated in 1925 tended further to check new importations. As a matter of fact these stocks, in some cases, became a drug on the market, and at least parts of them had to be reëxported. Another factor of important bearing on the total import trade may be found in the price declines of leading commodities in 1926. On the basis of pre-war values the index price appreciation for 1925 was 137, but only 125 in 1926. With no change in this index, the imports of 1927 would have been larger by approximately 1,000,000,000 marks.

Despite the fact that commodity imports were reduced by 2,477,000,000 marks in 1926, the general percentile relation of the constituent groups to the total remained very much the same as in 1925. Thus, purchases of foreign foodstuffs and beverages accounted for roughly one-third of the entire import trade; in the same manner, imports of raw materials and semi-manufactures, while declining by 1,345,000,000 marks, still constituted approximately one-half of the total. The industrial depression of the first half of 1926, as well as the lower prices of certain commodities, tended to influence the imports of raw materials and semi-manufactures. Furthermore, the value of this important group was made to feel very particularly the effect of the stock accumulations which took place in 1925; the greater part of these stocks consisted of metals, timber, hides, and rubber, and it will be observed that the respective import values of these goods in 1926 were materially lower than in 1925.

Commodity exports in 1926 totaled 9,818,000,000 marks, as against 8,798,000,000 marks in 1925, thus showing a gain of nearly 12 per cent; larger exports of raw materials and semi-manufactures and of finished goods were responsible for this advance, as the other two groups—livestock and foodstuffs—registered losses of 26 and 7 per cent, respectively. The most appreciable gain was in the category of raw materials and semi-manufactures, amounting to 723,000,000 marks or 44 per cent; in this connection it should, however, be remembered that a portion of the exports in this group was made up of some of the stocks which had been imported in 1925. At the same time, the favorable effect of the British strike can be clearly seen in this remarkable advance, as exports of coal and coke alone increased by 476,000,000 marks, or 114 per cent; the gain in this one commodity represents over 65 per cent of the gain for the entire group.

Finance. The German budget for 1927–28, which was adopted after the beginning of the fiscal year which is covered (Apr. 1, 1927–Mar. 31, 1928) balanced at 9,131,854,000 marks; taxes were expected to provide 5,305,000,000 marks of the total revenue, while 2,445,000,000 marks were expected to be derived from customs and consumption taxes. The budget bill for the fiscal year 1928–29 was passed in December, 1927. It totaled 9,356,000,000 marks and showed an increase in every department over the old budget with the exception of two. The Chancellor and the Minister of Agriculture believed they would be able to make savings, although their requests were only for 85,000 marks less than the preceding year. On the other hand, the Reichswehr asked for 20,000,000 more, the Ministry of Labor, 60,000,000 additional, the Pensions Bureau, 305,000,000 and War Burdens Bureau, 428,000,000. Of the proposed expenditure the states and communes would receive 3,200,000,000 or 325,000,000 more than the preceding year. The Reichswehr needed 589,000,000 to carry through its programme. However, all the moneys intended for use of the Defense department are not included in this budget. The Ministry of Transportation and other departments carried in their estimates items of considerable size for the transportation of troops, etc. For a further discussion of German finance, see below under History.

Railways. In 1927 the U. S. Bureau of Foreign and Domestic Commerce published a provisional statement concerning the operations of the German Railways Company covering its activities for the calendar year 1926. This railway company, the Reichsbahn, was organized under the direction of the Dawes Commission and is stated to be the largest railway system in the world. It comprises 30,000 miles of track and employs more than 700,000 men. The German Reich owns the preferred stock, valued at 881,000,000 reichmarks and common stock at 13,000,000,000 reichmarks. The railway system is mortgaged and the issue of bonds held in trust by the Entente. The balance sheet of the company for the first business year ended Dec. 31, 1925, comprising 15 months, closed with a gross surplus of 819,000,000 marks. Freight traffic reached its lowest point in January, 1926, as a result of an economic slump. However, the British coal strike caused a steady increase in the volume of merchandise to be transported, reaching its peak in November. The goods carried in 1926 amounted to 438,550,000 tons as compared with 408,700,000 tons during 1925. The general economic depression caused the elimination of a number of trains in Western Germany in the summer. The depression was felt also in the receipts from passenger traffic, which were approximately 8 per cent below those of 1925, owing to the decrease in traffic and the greater use of lower-class compartments. Figured in per cent of the total kilometers covered by passenger trains, the share of the fourth-class compartments increased from 45 per cent in 1913 to 58 per cent in 1925 and to approximately 61 per cent in 1926. The number of passengers carried dropped from 2,106,300,000 in 1925 to 1,819,000,000 in 1926; the pre-war figure for the same area amounted to 1,577,000,000. Receipts from passenger traffic amounted to 1,273,000,000 marks, as against 1,378,000,000 marks in 1925.

Locomotives available at the end of 1926 numbered 26,474 (28,110 at end of 1925), of which 301 (246 in 1925) were operated by electricity; the available passenger cars amounted to 63,476 (64,799 in 1925). The cost of service of locomotives was reduced. The consumption of coal per 1000 locomotive-kilometers decreased 4.5 per cent as compared with 1925, thereby dropping 3.2 per cent below the pre-war consumption; this was accounted for in part by the fuel savings premium introduced since Apr. 1, 1926. In December, 1926, the Reichsbahn made a contract with a German association of car builders for the supply of rolling stock over a period of several years with the end in view of cheapening the cost of railroad cars by more profitable working methods, and reducing thereby the number of railroad car manufacturers.

Compared with the year 1913, the receipts increased 22 per cent per passenger-kilometer and 34 per cent per ton-kilometer; at the same time expenditures increased 83 per cent per capita and 60 per cent for materials and supplies.

Shipping. On June 30, 1926, the German merchant marine amounted to 3,110,918 registered tons as compared with 5,459,296 in 1914. In 1925, 62,656 vessels (with freight) of 29,363,136 tons and 9514 vessels (in ballast) of 3,064,087 tons entered the ports of Germany and 51,875 (with freight) of 22,916,222 and 22,294 (in ballast) of 9,312,158 tons cleared.

Government. Under the constitution of the republic adopted July 31, 1919, and promulgated Aug. 11, 1919, executive power is vested in the president elected by the people for seven years, and in a ministry appointed by him and responsible to the Reichstag or parliament. Legislative power is vested in the Reichstag, which is elected by universal, equal, direct, secret franchise of male and female voters, on the principle of proportional representation; and in a federal council, the Reichsrat, consisting of 68 members (Prussia, 27, Bavaria, 11, Saxony, 7, Württemberg, 4, Baden, 3, other states, 16). The consent of the Reichsrat is required to all bills before their introduction into the Reichstag, but the latter body may pass a bill over the heads of the former by a two-thirds vote. In the Reichstag elected Dec. 7, 1924, the seats were divided among the various political parties as follows: Socialists, 131; Centre, 69; German National People's party, 110; German People's party, 51; Germany Democratic party, 32; Bavarian People's party, 19; Communists, 45; minor parties, 36; total 493.

The president in 1927 was Paul von Hindenburg, elected Apr. 26, 1925; assumed office, May 12, 1925. The cabinet as appointed on February 1, 1927, was as follows: Chancellor and Minister for the Occupied Provinces, Dr. Wilhelm Marx (Centre); Minister of Justice and Vice Chancellor, Oskar Hergt (Nationalist); Foreign Affairs, Dr. Gustav Stresemann (German People's party); Home Affairs, Dr. von Keudell (Nationalist); Finance, Dr. Köhler (Centre); Defense, Dr. Otto Gessler (no party); Labor, Dr. Heinrich Brauns (Centre); Food and Agriculture, Martin Schiele (Nationalist); Posts, Dr. Schaetzel (Bavarian People's party); Transport, Dr. Wilhelm Koch (Nationalist); Economic Affairs, Dr. Julius Curtius (German People's party).

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Cabinet Reorganization. As noted in the preceding Year Book the Marx cabinet, which had come into office in the spring of 1926, was compelled to resign on Dec. 17, 1926, chiefly because of bitter Socialist opposition to the martial movements of the Defense Minister, Dr. Otto Gessler, and the strict censorship law enforced by the Minister for Home Affairs, Dr. Külz. The crisis which followed lasted more than six weeks and a new cabinet was not sworn in until January 31. President Hindenburg played a very prominent part in the formation of the new cabinet and let it be known in no uncertain tones that he desired an executive council which controlled an absolute working majority in the legislative body, as well as one which would keep the army out of politics and maintain the foreign policies of Dr. Stresemann. He intimated that the most desirable cabinet would be composed of the middle parties, namely, the Centrists, Democrats, and German and Bavarian People's parties. He first offered the premiership to Dr. Curtius of the People's party, who was known to be particularly friendly toward Dr. Stresemann. Dr. Curtius was compelled to give up his efforts because he could not reconcile the labor element of the Centrist party and the wishes of the conservative group.

President Hindenburg then turned to former Chancellor Marx and requested him to form his fourth cabinet. Marx accomplished this with the results noted above under *Government*. For a time it appeared that Marx would form a middle party coalition, but he was unable to secure and maintain a majority of the members of the Reichstag. President Hindenburg then demanded that Marx form a coalition of the Centre and Right parties, saying, "The new government even if it does not include the representatives of the Left parties, nevertheless shall have the special duty of protecting the righteous interests of the broad working masses, serving all classes of the German people and of solving the important political, economic, and social problems which confront us."

As will be noted from the composition of this cabinet the German Nationalists played an important rôle in it. Dr. Marx let it be known beforehand that coöperation between the Centrists and the Nationalists could only be secured by the Nationalists agreeing to the following points: The German Republic was the only form of state admissible; the army must only secure recruits loyal to the republic; the League of Nations and Locarno pacts must be firmly adhered to; and a closer relationship with France was desirable to secure the evacuation of the Rhineland territory. After a long debate the Nationalists accepted this formula on condition that they be given four cabinet positions. The new government had a majority of 270 to 222 in the Reichstag.

The refusal of the Democratic party to support the coalition compelled the resignation of Dr. Otto Gessler from that party in order to retain his position as Minister of Defense. It was quite evident that failure to resign would be followed by expulsion from the organization. The first test of the Marx group came on February 5, when the Socialists made a bitter attack on Dr. von Keudell, who was accused of treasonable acts against the republic in connection with the various Nationalist plots of the past few years. An investigation into his activities by the Chancellor resulted in a complete whitewashing, whereupon the vote of confidence in the new government was promptly forthcoming. It was felt generally at the time, however, that the Socialist charges were correct, and that Dr. Marx's report was based more on convenience than upon truth.

The coalition ministry managed to weather the storms of internal political disturbances throughout the remainder of the year, although to say that it worked in perfect harmony would be a gross exaggeration. The Nationalist members of the cabinet took advantage of every opportunity to attack the foreign policies of Dr. Stresemann and publicly predicted that he would not hold his position long. Dr. Stresemann, however, had the solid backing of President Hindenburg and most of the Centrist party, as well as the support of the Socialists in the Reichstag, although they were not members of the group of parties supporting the Marx government.

Inflammatory speeches were made by Nationalist members of the cabinet against Poland, Czechoslovakia, and France, which brought bitter denunciation in the press of those countries and on one or two occasions called for diplomatic protests. Chancellor Marx with characteristic suavity mollified the governments attacked without hurting the feelings of his own cabinet members. Generally speaking, the entire year was an exceptionally quiet one both at home and abroad and was interrupted by no untoward incidents, with the possible exception of the criticisms of Agent General S. Parker Gilbert, that would tend to disrupt the political and economic advancement of the republic. The law preventing the former Kaiser from returning to Germany was extended for a period of two years without causing more than a ripple of comment.

October 2 was a day of festivity throughout the entire country because of the celebration of the eightieth birthday of President Paul von Hindenburg. In reply to a felicitous address delivered by Chancellor Marx, President Hindenburg asked for national unity as the chief need of the republic. He stated in connection with the occupied Rhineland: "My deepest thoughts at this hour are devoted to our compatriots in the Rhineland districts who, to our regret, have not been relieved from foreign occupation. I greet them with sad heart, and the wish and hope that the land on the Rhine may soon regain its liberty. To accomplish this will be the foremost purpose of German policy."

THE RHINELAND. The continued occupation of the Rhineland that was mentioned in President Hindenburg's speech continued to irk the German government and people. In the latter part of the year Chancellor Marx made a tour of inspection of the Rhineland districts in his capacity of Minister for Occupied Territories. As reported in the *New York Times* on December 10, Allied military occupation of the Rhineland is inconsistent with the general political situation and not in accordance with the spirit of the twentieth century, according to Chancellor Marx, who aired his views on the subject before a committee of the Reichstag. Though the number of troops had been reduced by 10,000, according to agreement, they were still far above the strength of the German soldiers in the same area before the War, Dr. Marx declared.

The Chancellor took exception to negro troops numbering about 1000 who were still maintained in this region, and complained that the French during their autumn maneuvers had destroyed, unnecessarily, valuable crops, for which the Germany government must pay. That the occupied area should be used for such purposes, the Chancellor believed, was overstepping the bounds. The target practice of the artillery, he asserted, endangered the lives of many inhabitants. Other rankling points, he said, were the military courts of justice dealing with German subjects and giving them long and severe prison terms or banishing them from their homes. In the first half of 1927, he went on, more than 700 Germans had been brought before French courts-martial, in most cases for very petty offenses. The cases of mistreatment of Germans by the occupation troops were numerous and not conducive to bettering international relations. He stated that his tour had convinced him of two things: (1) That the government's policy of international reconciliation met the widest approval and fullest understanding of the Rhineland population, and (2) That along the Rhine there was still a strong feeling about the heavy burdens of material and spiritual nature connected with the occupation. "The size of the occupation forces still rests heavily on the population, on the city dwellers because of the burden of furnishing quarters and on the farmers because of target practice and maneuvers of the occupying army."

DAWES PLAN. For a discussion of the severe rebuke of the Agent General for Reparations, S. Parker Gilbert, handed to the German government on October 20, concerning the unscientific financial habits of the federal and state governments, and for the results of the third year of the workings of the plan, consult the article DAWES PLAN. For the commercial agreement between France and Germany and its effects on the United States, consult FRANCE, *History*.

Other aspects of Germany's internal and external problems during 1927 will be found under the articles: LEAGUE OF NATIONS; MILITARY PROGRESS; NAVAL PROGRESS; SHIPPING; SHIPBUILDING; DISARMAMENT; PEACE AND PEACE PROPOSALS; and ARBITRATION, INTERNATIONAL.

GERRY, ELBRIDGE THOMAS. American lawyer and philanthropist, died at New York, N. Y., February 18. He was born in New York City, Dec. 25, 1837, a grandson of Elbridge Gerry, signer of the Declaration of Independence and vice president of the United States. He graduated at Columbia College in 1857 and was admitted to the bar in 1860. In 1867 he was a member of the New York State Constitutional Convention. In 1876 he became president of the New York Society for the Prevention of Cruelty to Children, an organization in the work of which he was so prominently identified, until his retirement in 1901, that it became known among the people of New York as "the Gerry Society." He was vice president of the American Society for the Prevention of Cruelty to Animals until 1899, and a governor of the New York Hospital from 1878 to 1912. He was chairman of the New York State commission on capital punishment which substituted electricity for hanging after hearings lasting from 1886 to 1888. In 1889 he was chairman of the executive committee for the celebration of the centennial of the inauguration of George Washington. Commodore Gerry, as he was generally known after he became Commodore of the New York Yacht Club, 1886–93, was active in many philanthropic and civic movements, serving on a large number of boards. He contributed to magazines various articles on topics in which he was interested. He had a private law library of 30,000 volumes.

GIBNEY, VIRGIL PENDLETON. American orthopædic surgeon, died at Bridgeport, Conn., June 16. He was born in Jessamine County, Kentucky, Sept. 29, 1847, and after graduating at Kentucky University in 1869 studied medicine at Bellevue Hospital Medical College in New York, receiving his M.D. in 1871. Specializing in orthopædic surgery, he became identified as resident house surgeon, 1871–84, and surgeon-in-chief, after 1887, of the Hospital for Ruptured and Crippled, and from 1882 to 1894 he was professor of orthopædic surgery in the New York Polyclinic. In the latter year he became clinical lecturer in orthopædic surgery in the College of Physicians and Surgeons of Columbia University, being promoted to clinical professor in 1895 and serving as professor, 1904–17. He was the first president of the American Orthopædic Association, and from 1902 to 1904 was vice president of the New York Academy of Medicine. He was a member of many medical and other organizations and enjoyed a high reputation in his special field.

GIBRALTAR. A possession of Great Britain on a small peninsula, comprising the Rock of Gibraltar, on the southwest coast of Spain, commanding the entrance to the Mediterranean Sea. Area, 1⅞ square miles; population, at the census of 1921, 20,638, of whom 2932 were military and 546 naval. On Jan. 1, 1926, the fixed population was estimated at 16,127, and there were also about 1161 aliens. The inhabitants are chiefly descendants of Spanish and Italian settlers, and in religion are Roman Catholics. Education is compulsory between the ages of five and 14. In 1925–26 there were 14 government aided elementary schools with 2610 pupils. There are also five secondary schools. The revenue in 1925 was £162,250 and the expenditure, £167,267. Trade is mainly transit. Vessels entered in 1925, 4732 of 6,532,168 tons; cleared 2762 of 5,887,854 tons. There is cable connection with the continent, with eastern Mediterranean ports, and with England. Gibraltar is under a governor who is also commander-in-chief. He is assisted by an executive council which was established in 1922. Governor, in 1927, General Sir Charles C. Monro.

GIBSON, ROBERT WILLIAM. American architect, died at Woodbury, N. Y., August 17. He was born in Essex, England, Nov. 17, 1854, and was educated at Ingress House Schools, Gravesend, and the Royal Academy of Arts, London, at which he graduated in 1879. After passing the art examinations of the Royal Institute of British Architects he went to New York and entered upon practice. He was architect of the Albany, N. Y., cathedral, and in New York City of the United States Trust Company's building, the Clearing House, the Greenwich Savings Bank building, the Coffee Exchange, the Botanical Museum, the Randall Memorial Church at Sailors' Snug Harbor, and banks, churches and office buildings in other cities. He was at one time president of the Architectural League of New York, and was a member of various scientific and other organizations. He wrote: *The Morality of Nature—a Philosophy of Evolution* (1923), and was an occasional contributor to magazines.

GIFTS AND BENEFACTIONS. See UNIVERSITIES AND COLLEGES.

GILBERT, Frank Bixby. American educator, died at East Schodack, N. Y., August 28. He was born at Bainbridge, N. Y., Mar. 10, 1867, and after graduating at Hamilton College in 1889 was admitted to the bar in 1892, and in the following year became assistant to the commissioners of statutory revision of New York State. He served until 1901, when he was designated by the New York State legislature as an attorney to draft legislative bills. In 1906 he became New York State law librarian, and in 1908 counsel to the New York State education department, serving until 1919, when he became deputy commissioner of education and counsel to the State education department. From January to September, 1921, he was acting commissioner of education of the State of New York. He lectured on various legal topics in the Albany Law School, and in 1923 was elected a trustee of Hamilton College, from which he had received the degree of LL.D. in 1920. He was a compiler of various legal books, including: *Law of Domestic Relations* (1898); *Lien Laws of New York* (1900); *Official Court Rules, N. Y.* (1900, 1906); *New York State Code of Civil Procedure, with Annotations* (1905) (2d ed., 1910); and *Town and County Officers' Manual, New York State* (1912). He was also co-editor of: *General Law of State of New York, Annotated* (1901, Supplement, 1901–06, 1906); and *Annotated Consolidated Laws of the State of New York* (1909, supplements, 1919–23).

GILCHRIST, Thomas Caspar. American physician and clinical professor of dermatology at Johns Hopkins University, died at Baltimore, Md., November 14. He was born at Crewe, England, June 15, 1862, and was educated at Owens College, now Victoria University of Manchester, and graduated in medicine at the University of London in 1886, being made a member of the Royal College of Surgeons in 1887 and a licentiate in medicine, surgery and midwifery in 1887. He went to America in 1890, and in 1897 became clinical professor of dermatology in the University of Maryland, and in the following year was made dermatologist at the Johns Hopkins Hospital and clinical professor of dermatology in the Johns Hopkins University. He was a member of many American and European medical societies, particularly those of dermatologists, and was vice president and president of the American Dermatological Association and vice president of the section on dermatology of the British Medical Association in 1902.

GINZBERG, Asher (pen name Ahad Ha'am). A Russian scholar and leader of the Zionist movement, died at Tel-Aviv, Palestine, January 2. He was born at Skvira, Russia, in 1856, and studied the Talmud in a Jewish "heder," or elementary school. He lived at Vienna, Berlin and Breslau before he settled in Odessa, Russia, in 1886. In 1889 he founded the Zionist League ("Bene Mosheh") designed to improve Hebrew education and culture and to protect the interests of the Palestinian Hebrew settlements. In 1889 he published in the Russian-Jewish periodical *Ha-Melie* the first of a series of articles on the Zionist movement and the future of the Jews, who at that time in Russia were suffering severe oppression and outrage. These articles later were gathered together into a work called *The Parting of the Ways* and translated into the principal languages of the world. In 1897 Ginzberg attended the Zionist Congress at Basel, Switzerland, where he opposed ideas of Dr. Herzl. The latter advocated "political" Zionism, while Ginzberg aimed at a "moral" movement involving the development of Palestine as a permanent centre for Jewish spirit and culture and including an intellectual and moral homeland for Jews throughout the world as well as a place of physical refuge which might eventually become a political state. He inspected the Palestinian colonies in 1900, and from 1906 to 1921 lived in England, where he managed a tea shop in London until the Balfour declaration of 1917 made a Jewish settlement in the Holy Land possible. He resided in Palestine after 1921 and devoted himself to writing, his last work being a two-volume edition of his memoirs and letters. In 1890 he became editor of *Keweret*, and in 1896 of *Ha-Shiloah*. It was said that Ginzberg's writings in Hebrew were more widely read than any other contemporary works in this language, and several editions of his collective works were published. In 1895 appeared *Al Parashat Derakim*, a collection of his works, a second edition being published in 1902. Many of the books were translated into German and Russian, and under the title *Selected Essays* an English translation by Leon Simon was published in 1912.

GIRL SCOUTS. A non-sectarian organization for girls started in Savannah, Georgia, in 1912, and incorporated under the laws of the District of Columbia in June, 1915. The plan for Girl Scouting is not a copy of the Boy Scout programme, although both organizations were founded by Sir Robert Baden-Powell, but it is rather a development of the Girl Guide movement, changed and adapted to meet the needs of American girls. The purpose of the organization is to help girls to realize the ideals of womanhood, as a preparation for their responsibilities in the home and service of the community; it aims to give girls, through natural, wholesome pleasures, those habits of mind and body which will make them useful, responsible women, to develop initiative, self-control, self-reliance, and service to others. When a girl becomes a scout she makes the following promise: "On my honor, I will try: to do my duty to God and to my country; to help other people at all times; to obey the Scout Laws."

The unit of organization is the troop, which is composed of one or more patrols. There are eight girl scouts in each patrol. The activities of the troop are developed through the Patrol System, under a Patrol Leader who is appointed from the group. The girls advance by a merit system which was developed by Sir Robert Baden-Powell. The total active paid membership of the organization, as of Oct. 21, 1927, was 160,956. It maintains 12 summer training schools for girl scout leaders, at which, in 1926, the enrollment was 876, as well as summer camps for its members. From 1922 to January, 1927, courses in girl scout leadership were given through the Laura Spelman Rockefeller Memorial to 8769 leaders in 145 different colleges and institutions of learning in 41 states. These leaders are encouraged to take up Girl Scout work in their home neighborhood after leaving college. The official organ for Girl Scouts is *The American Girl*, and for leaders, *The Girl Scout Leader.* The budget for the year 1928 totaled $334,784. The officers for 1927 were: Mrs. Calvin Coolidge, honorary president; Miss Sarah Louise Arnold, president; Mrs. Herbert Hoover, first vice president and chairman of the Board of Directors; Mrs. Arthur O. Choate, Mrs. Julius Rosenwald, Mrs. William H. Hoffman, Mrs. Vance C. McCormick, Mrs. Charles C. Harrison, Jr., Mrs. A. Clifford Shinkle, vice presidents; Mrs. Nicholas F. Brady, treasurer; Mrs. Julius H. Barnes, corresponding secretary; Mrs. Jane Deeter Rippin, national director; Douglas Campbell, counsel. The national headquarters are at 670 Lexington Avenue, New York City.

GIZA. See ARCHÆOLOGY.

GLENNAN, JAMES D. American military surgeon, died at Washington, D. C., December 24. He was born at New York, Mar. 2, 1862, and graduated at the medical department of Columbian College (now George Washington University), Washington, D. C. He became an assistant surgeon in the United States Army in 1888, and served in the Sioux outbreak of 1890, receiving commendation for "fortitude and cool performance of duty under fire." After serving through the intervening grades, he became a colonel in the medical corps, July 1, 1916, and when the United States entered the World War in 1917 he was assigned to duty as the chief surgeon of the American Expeditionary Forces. As such he directed the establishment, equipment and operation of the United States Army hospitals in France, receiving for his achievements the Distinguished Service Medal, a War Department citation, the Medaille d'Honneur, and membership in the Legion of Honor, of France. In 1919 he was assigned to duty as commandant of the Walter Reed Hospital, Washington, D. C., and remained there until his retirement in March, 1926. In the meantime, in February, 1925, he had been advanced to the rank of brigadier general and made an aid to the Surgeon General of the United States Army. General Glennan was recalled from retirement to serve in connection with the building programme at the Walter Reed Hospital, where he died.

GLIDDEN, CHARLES JASPER. American telephone and aëronautical engineer, died at Boston, Mass., September 11. He was born at Lowell, Mass., Aug. 29, 1857, where he attended the public schools. At the age of 15 he became a telegraph operator at Manchester, N. H., and in 1873 he became manager of an office of the Atlantic Pacific Telegraph Company. In 1876 he was active with Alexander Graham Bell in the development of the telephone, and in the following year built private telephone lines in Massachusetts and New Hampshire and secured the first subscriber to the exchange system in Lowell. He organized and was an officer for several New England and Western telephone companies, but he retired from this field in 1900, when he founded the Glidden automobile tours, and in the following year made the first automobile tour of the world. His next interest was aëronautics, and he made 42 balloon ascensions in the United States and four in England. He then took up airplane flying, and in 1909 advocated an air mail and express service between American cities. He was the twelfth person in the United States to qualify for a balloon pilot's license and also held a similar license in France. At the entry of the United States into the World War in 1917, Colonel Glidden entered the Army balloon school and was commissioned captain, and was placed in charge of various activities in connection with the selection of aviation officers and also with publicity. He was a member of the leading aëronautical organizations of the world and a life member of the Royal Geographical Society of England. In 1921 he was elected president of the World Board of Aëronautical Commissioners, after making his third trip around the world.

GLOZEL DISCOVERIES. See ARCHÆOLOGY.

GODFREY, CHARLES C. American physician and astronomer, died at Bridgeport, Conn., August 31. He was born in 1856. He graduated at the Sheffield Scientific School at Yale University, and studied medicine at Columbia University and Dartmouth College, from which he graduated with the degree of M.D. He was active in practice in Bridgeport, Conn., and in 1903–04 was surgeon-general of Connecticut, having been colonel and surgeon of the Fourth Regiment of the Connecticut National Guard. He was an amateur scientist of broad attainments, and at the time of his death was president of the American Association of Variable Star Observers, an amateur organization with world-wide connections which worked in coöperation with the Harvard University Observatory. He was also a botanist, and made two expeditions to Newfoundland in search of specimens; his collection contained specimens of most of the plants of North America. He early was interested in the telephone, and in 1884 was active in securing the extension of the New Haven company to Bridgeport; likewise he was a pioneer in the field of radio.

GOITRE. The First International Congress on Goitre was held at Berne, Switzerland, during Aug. 24–26, 1927, and a report by Professor W. His appears in the *Klinische Wochenschrift* for October 1. Since goitre is eminently a geographical problem it is highly important that representatives from the different countries exchange views at frequent intervals. Practically all countries were represented by delegates although some of the greatest authorities were absent including Plummer of the Mayo Clinic, Marine of New York and McCarrison of India. The congress was especially distinguished by the large number and great variety and value of the exhibits which were to form a nucleus for a future Goitre Museum. Aside from this it is difficult to sum up the special mission and value of the session. It was evident that the nomenclature differed so much in the different countries that standardization must be brought about at once lest constant misunderstandings arise. Nothing apparently was contributed to a discovery of the cause of goitre. Lack of iodine as a causal element has receded of late in importance despite the great value of the element in prevention and cure. That the surgical aspect of the disease stands well at the front in goitre studies may appear from the fact that Kocher, the President of the Congress, was known chiefly through his great experience in the surgical removal of goitrous growths of all forms.

Professor A. Oswald of Zurich published an exhaustive article on the wholesale prevention of goitre in the *Schweizerische medizinische Wochenschrift* for July 30, 1927. This movement dated back only five years and apparently was an endorsement of the success of a similar campaign in the United States, which was inaugurated at least five years earlier. The experience and conclusions in Switzerland bear out fully those in certain localities in the United States. It must be borne in mind that Switzerland is a notably goitrous country, the school children in some of the cantons showing an incidence of 100 per cent. Prevention of goitre may be instituted in the pre-school period of childhood, in the earlier school years when education is compulsory and in the subsequent period, and generally speaking the earlier the age period the better the results. The round-up of children incidental to attendance in the primary and secondary schools gives superior advantages for mass examination and mass treatment; and therefore this is the most feasible time of life, especially as results in later adolescence and maturity are relatively unfavorable, while to the age of 14 they are fairly uniform. Thus far at least 28,000 Swiss school children had figured in the mass prophylaxis, which as stated, had extended over a five-year period and in recent years the movement had spread to districts in Austria, Bavaria, Thuringia and Italy.

The preventive campaign consists solely in the administration of iodine in some form, in determining the minimum dose and *pari passu* in minimizing any possible ill effects and in maintaining the regimen until the child is free from all traces of goitre. It is well to admit at the start that wholesale eradication of the disease is impossible and is not anticipated. There are three degrees known familiarly as severe, moderate and mild, and a subject with the severe form may be cured or merely improved—changed to a milder form. In the latter the outlook for complete recovery is much better.

Three methods of iodine prevention have been tested—the use of the drug in tablets given at certain intervals, the use of iodized table salt and a diet rich in substances containing iodine, notably certain kinds of fish. The former is by far the more practicable for during the school years it is possible to give the children iodine in tablet form. The doses have often been too large—in the United States especially—and very small doses given over long periods of time have proved themselves of the greater value, to say nothing of prevention of toxic results. The author has especially studied alleged deleterious consequences and has found not a single instance of permanent injury. Occasional symptoms of overdose always subside when the iodine is discontinued or reduced.

GOLD. The Bureau of the Mint, with the cooperation of the Bureau of Mines, issued the following statement of the preliminary estimate of refinery production of gold in the United States during the calendar year 1927:

States	*Gold*	
	Ounces	*Value*
Alaska	282,873	$5,847,500
Arizona	207,064	4,280,400
California	567,855	11,788,600
Colorado	254,869	5,268,600
Georgia	15	300
Idaho	14,024	289,900
Illinois	.....	....
Michigan	.....	....
Missouri	.....	....
Montana	56,221	1,162,200
Nevada	144,564	2,988,400
New Mexico	26,321	544,100
North Carolina	5	100
Oregon	13,492	278,900
Pennsylvania	97	2,000
South Dakota	322,516	6,667,000
Tennessee	406	8,400
Texas	334	6,900
Utah	189,746	3,922,400
Vermont	.....	....
Washington	20,032	414,100
Wyoming	58	1,200
Philippine Islands	77,705	1,606,300
Total	2,178,197	45,027,300

For the full calendar year 1927 the exports and imports of gold from and to the United States compare as follows:

Year	*Exports*	*Imports*	*Excess*
1927	$201,455,000	$207,535,000	+ $6,080,000
1926	115,708,000	213,504,000	+ 97,796,000
1925	262,640,000	128,272,000	− 134,368,000
1924	61,648,000	319,721,000	+ 258,073,000
1923	28,643,000	322,715,000	+ 294,072,000
1922	36,874,000	275,169,000	+ 238,295,000

The largest monthly gold exports since the war were $82,972,840 in June, 1919; the December, 1927, exports totaling $77,849,000 were the second in amount. Largest monthly gold imports were $116,762,001, in October, 1920.

Discussing the gold movement Grosvenor Jones, chief of the financial section of the U. S. Department of Commerce, stated that in addition to taking the metal out of the United States foreign countries had set aside about $80,000,000 in the metal here during the last four months of 1927, meaning that foreigners exercised ownership over considerable quantities of the gold stock still left in the United States.

"The final results for the year show a net reduction of about $151,000,000 in our total gold stock," Mr. Jones said; "earmarking (setting aside) is for all practical purposes tantamount to export. The bulk of the gold exported went to Latin America, Argentina taking $62,000,000; Brazil, $34,000,000; Uruguay, $2,000,000, and Venezuela, $1,000,000. Fairly large amounts were shipped to the Far East." During the early months of 1927, Mr. Jones added, the United States imported a great deal of gold from Great Britain and other European countries, but during the closing months this was in part returned. He cited the American foreign loans of 1927, which totaled $1,377,000,000, as being the chief influence on gold movements during 1927.

The United States Director of the Mint estimated the world production of gold in 1926 at 19,280,217 ounces (599,696 kilos), valued at $398,557,458, as compared with 19,025,942 ounces (597,786 kilos), valued at $393,301,128 in 1925. For synthetic production, see Chemistry, Industrial; see also Metallurgy.

WORLD PRODUCTION OF GOLD, 1926

[*The production figures given below are published in the report of the U. S. Director of the Mint*]

Country	*Kilos, fine*	*Ounces, fine*	*Value*
North America:			
United States	69,630	2,238,616	$46,276,299
Canada	54,564	1,754,228	36,263,111
Mexico	24,033	772,661	15,972,320
Total	148,227	4,765,505	98,511,730
Central America and West Indies[b]	2,709	87,075	1,800,000

WORLD PRODUCTION OF GOLD, 1926—*Continued*

Country	*Kilos, fine*	*Ounces, fine*	*Value*
South America:			
Argentine [a]	75	2,419	50,000
Bolivia	10	[c]332	6,863
Brazil	3,176	102,108	2,110,759
Chile	1,839	59,132	1,222,364
Colombia	2,848	75,488	[c]1,560,486
Ecuador	1,944	62,486	1,291,700
Guiana—			
British	203	6,516	134,696
Dutch	234	7,526	155,574
French	1,320	42,488	877,271
Peru	2,910	93,556	1,938,974
Venezuela	[d]950	30,542	631,859
Total	15,009	482,543	9,975,046
Europe:			
Austria	41	1,318	27,245
Czechoslovakia	240	7,716	159,503
France	1,100	35,865	731,059
Germany	162	5,208	107,659
Great Britain	....	......	....
Greece	....	......	....
Italy	53	1,704	35,225
Norway	....	......	....
Poland	....	......	....
Rumania	[e]1,263	40,605	839,380
Russia	30,860	992,155	20,509,659
Spain	30	967	[b]20,000
Turkey	[b]30	964	19,927
Yugo-Slavia	323	10,384	214,656
Total	34,102	1,096,386	22,664,313
Asia:			
British India	11,943	383,970	7,937,362
China	3,421	[b]110,000	2,273,901
Chosen (Korea)	5,929	190,620	3,940,471
East Indies—			
British	602	19,350	[b]400,000
Dutch	3,588	115,354	2,384,578
Federated Malay States	450	14,475	299,225
Indo-China	[b]10	321	6,635
Japan	9,576	307,862	6,364,082
Philippine Islands	2,838	91,242	1,886,139
Sarawak	8	248	5,023
Taiwan (Formosa)	281	9,035	[d]186,762
Total	38,646	1,242,472	25,684,178
Oceania:			
Australia—			
New South Wales	604	19,435	401,757
Northern Territory	5	153	3,168
Queensland	322	10,339	213,726
South Australia	24	758	15,669
Victoria	1,527	49,078	1,014,582
West Australia	13,603	437,343	9,040,680
Tasmania	131	4,223	87,297
Papua	199	6,388	[f]132,052
New Zealand	3,912	[c]125,777	2,600,041
Total	20,327	653,494	13,508,917
Africa:			
Abyssinia	622	[b]20,000	413,436
Algeria	....	......	....
Belgian Congo	4,112	132,201	2,732,836
Bechuanaland	134	4,296	88,806
British West Africa (Gold Coast, Ashanti, Nigeria)	6,210	199,666	4,127,461
Egypt	20	648	13,292
French West Africa	310	9,966	206,015
Kenya Colony	24	779	16,103
Madagascar	307	9,870	204,031
Portuguese East Africa	284	9,127	188,684
Rhodesia—			
Northern	24	779	16,103
Southern	18,458	593,429	12,267,268
Swaziland	41	1,309	27,059
Sudan	271	8,714	180,134
Tanganyika	224	7,202	148,878
Transvaal, Cape Colony and Natal	309,635	9,954,761	205,783,173
Total	340,676	10,952,742	226,418,274
Total for world	599,696	19,280,217	398,557,458

[a] Estimate based on United States imports of ore and bullion.

[b] Estimate based on other years' production.

[c] Amount exported.

[d] 1925 figures.

[e] Estimated on basis of production from Jan. 1 to Oct. 15, 1926.

[f] For year ending June 30, 1926.

GOLD, TRANSMUTATION OF. See CHEMISTRY, INDUSTRIAL.

GOLD COAST. A colony on the Gulf of Guinea in Africa belonging to Great Britain; bounded by the French Ivory Coast on the west, the French Sudan on the north, Togoland on the east, and extending on the south for 334 miles along the Gulf of Guinea; comprising, in addition to the colony proper, Ashanti and the Northern Territories. The area of the three divisions is estimated at 80,000 square miles; population at the census of 1921, 2,078,043, of whom 2165 were Europeans. The capital and chief town is Accra, with a population of 38,000. Other large towns are Cape Coast (15,000), Sekondi (10,000), and Keta (10,000). In 1925–26 there were 22 government schools and 212 assisted schools, which are under the control of various missions. The average attendance during this year at the primary and secondary schools was 29,573. There were besides a large number of unassisted primary schools supported by the religious denominations.

The staple products and chief exports are: Cacao, palm oil, palm nuts, cola nuts, and india rubber; there has also been an increasing production of spice, coconuts, coffee, cotton, and a steady development of the trade in valuable native woods. The chief mineral is manganese, which constitutes an important export. The imports in 1925 were valued at £9,782,619 and the exports at £10,890,223. The revenue for the same year was £5,871,556; the expenditure, £4,255,126. The public debt on Mar. 31, 1926, was £11,791,000. In 1927 there was 394 miles of railway open to traffic and 98 under construction. The shipping entered and cleared in the foreign trade during 1925 was 4,181,150 tons, of which 2,490,651 were British.

Ashanti, annexed by Great Britain in 1901, is under the governor of the Gold Coast, although it has its own local laws and ordinances. According to the census of 1921, the population was 407,000, of whom 400 were Europeans. Kumasi, with 20,000 inhabitants, is the chief town. In 1925–26 there were 803 pupils in the government schools and 3163 pupils in the mission schools. The forests in the western part are rich in mahogany, cedar, and other valuable woods, and in trees that yield rubber, oil and gum copal, and fruits. Local receipts in 1925–26, £78,195; local expenditures, £474,226.

The Northern Territories, constituted a British protectorate in 1910, are also under the governor of the Gold Coast but locally administered by a high commissioner, with his headquarters at Tamale. Area, 31,000 square miles; population at the census of 1921, 527,914, of whom only 49 were Europeans. Navaro is the chief town with a population of 15,000. Local revenue in 1925–26, £9203; local expenditure, £100,790. Governor of the Gold Coast in 1927, Brig.-Gen. Sir F. G. Guggisberg; Chief Commissioner of Ashanti, Sir J. Maxwell; Chief Commissioner of the Northern Territories, Major A. H. C. Walker-Leigh.

GOLF. Robert T. Jones, jr., of Atlanta, Ga., in 1927 for the second successive year was the leading character in the world of golf. He opened his year's campaign on the links by capturing the Southern open tournament from one of the strongest fields ever assembled. In the National open, however, Jones slumped badly, losing his crown to Tommy Armour, who defeated Harry Cooper in the play-off. Spurred, perhaps, by this reverse Jones suddenly changed his original intentions and decided to defend his British open championship at St. Andrews. It was a happy switch in plans as he triumphed most gloriously, breaking the record for the course in his opening round with a 68 and following with three "72's." Jones returned to the United States in time to wrest the National amateur title from George Von Elm, to whom he had lost it the previous year, and this contributed more than a little to his prestige.

Among the professionals, the veteran Walter Hagen stood out through his winning for the fourth consecutive time the Professional Golf Association championship. Hagen also captured the Western open for the second straight time. To top off a wonderful golfing year Walter commanded the United States links' forces against Great Britain in the Ryder Cup competition and emerged triumphant. This international golf clash took place at Worcester, Mass., and was won by the United States with a final score of 9½ to 2½. This having been the only international golf clash of importance during 1927, the results are appended:

Aubrey Boomer and Charles Whitcombe, Great Britain, defeated Leo Diegel and William Mehlhorn, United States, 7 and 5.

Walter Hagen and John Golden, United States, defeated "Ted" Ray and Frederick Robson, Great Britain, 2 and 1.

Gene Sarazen and "Al" Watrous, United States, defeated Arthur Havers and Frederick Robson, Great Britain, 3 and 2.

Johnny Farrell, United States, defeated Aubrey Boomer, Great Britain, 5 and 4.

Leo Diegel, United States, defeated "Ted" Ray, Great Britain, 7 and 5.

Walter Hagen, United States, defeated Arthur Havers, Great Britain, 2 and 1.

William Mehlhorn, United States, defeated Archie Compton, Great Britain, 1 up.

John Golden, United States, defeated Herbert Jolly, Great Britain, 8 and 7.

George Duncan, Great Britain, defeated Joseph Turnesa, United States, 1 up.

Al Watrous, United States, defeated Frederick Robson, Great Britain, 3 and 2.

Gene Sarazen, United States, and Charles Whitcombe, Great Britain, finished all square.

Others to distinguish themselves at the tee and putting green during 1927 were Johnny Farrell, victor in eight tournaments, Robert Cruickshank, whose tournament score was four and a half, and Tommy Armour with two and a half.

There were some surprising happenings in women's golf, three comparatively unknown players coming to the fore. Mrs. Miriam Burns Horne dethroned Mrs. G. Henry Stetson as U. S. national champion and also won the Trans-Mississippi title. Mrs. Henry Pressler took the Western honors and Miss Helen Payson captured the Canadian crown.

The winners of the more important tournaments of 1927 were:

U. S. National Open, Tommy Armour; U. S. National Amateur, Robert T. Jones, jr.; U. S. National (women), Mrs. Miriam Burns Horne; U. S. Professional, Walter Hagen; Canadian Open, Tommy Armour; British Amateur, Dr. William Tweddell; British Open, Robert T. Jones, jr.; British Women's, Mlle. Simone de la Chaume.

The U. S. intercollegiate title was won by Princeton University. Cambridge defeated Oxford in the annual clash of these English universities.

GOODELL, John M. American engineer and editor, died in New York City, June 21. He was born in Worcester, Mass., Aug. 3, 1867, and graduated at the Worcester Polytechnic Institute with the degree of B.S. in civil engineering in 1888. After a brief field experience he became connected with the editorial staff of *Engineering News*, and in 1892 became associate director of *Engineering Record*. From 1894 to 1897 he was assistant secretary of the American Society of Civil Engineers, and from 1897 to 1902 he was again with *Engineering Record*. This service was interrupted by a year as resident engineer in paper-mill construction at Sault Ste. Marie, but he returned to *Engineering Record*, from which he retired in 1912. He was later active in the reorganization of the American Highway Association. During the World War he was connected with the Emergency Fleet Corporation, and during the last months of the war period he was acting chairman of the National Highway Council. He was then consulting engineer to the Bureau of Public Roads and concerned chiefly with organization work. He served as editor of the *Journal of The American Water Works Association*, and was engaged in technical publicity. He was the author of *Water Works for Small Cities and Towns; Location, Construction and Maintenance of Roads;* and translated Baumeister's *Cleaning and Sewerage of Cities.*

GOODMAN, William. American mechanical engineer and inventor, died at New York, April 21. He was born in Cincinnati, Ohio, July 8, 1874, and graduated at Haverford College in 1895 and from Harvard University in 1896. His first employment was with the engineering department of the Laidlaw-Gunn-Gordon Company of Cincinnati, which later was absorbed by the Worthington Pump and Machinery Corporation. He served as general manager of the Cincinnati plant until 1918, when he was transferred to the New York office as assistant to the vice president. He was elected a vice president in 1922, being in charge of manufacturing and engineering. He was known for his development of the two-cycle double-acting Diesel engine, adopted by the United States Shipping Board, and the feather-valve air compressor. In the Spanish-American War he served as an ensign in the navy, and during the World War he was in charge of the manufacture of munitions at the Worthington plant in Hazleton, Pa.

GOODSPEED, The Rev. Dr. Thomas Wakefield. American educator, died at Chicago, Ill., December 16. He was born at Glens Falls, N. Y., Sept. 4, 1842, and was educated at Knox College, the University of Chicago, the University of Rochester, N. Y., and the Rochester Theological Seminary, graduating at the last named institution in 1866. Dr. Goodspeed was pastor of the Vermont Street Church, Quincy, Ill., 1866–72; associate pastor of the Second Church, Chicago, 1872–76; pastor of the Morgan Park Church, Chicago, 1877–80, and secretary of the Baptist Union Theological Seminary, Chicago, 1877–80. From 1888 to 1890 he was active in raising money for the new (and present) University of Chicago, and he was mainly instrumental in interesting John D. Rockefeller in offering $600,000 for the institution on condition that $400,000 be pledged by others. Dr. Goodspeed, with Frederick T. Gates, accomplished the collection of the money, and he is called one of the founders of the university. From 1890 to 1913 he was secretary of the university's board of trustees, from 1897 to 1913 its registrar, and from 1913 its corresponding secretary. The University of Chicago conferred on him the degree of D.D. in 1885, and the University of Rochester that of LL.D in 1913. He wrote three books dealing with the history of the University of Chicago.

GORDON, George Byron. American archæologist, and director of the Pennsylvania University Museum, died at Philadelphia, Pa., January 30. He was born in Prince Edward Island, Canada, Aug. 4, 1870, and studied at the University of South Carolina and at Harvard, from which he received the degree of Sc.D. in 1894. He was chief of the Harvard University expedition to Central America, 1894–1900, and in 1903 went to the University of Pennsylvania, where he became assistant curator of anthropology, receiving successive promotions until 1907, when he was appointed assistant professor. In 1910 he was made director of the University of Pennsylvania Museum. He wrote extensively on archæology, his published works including: *Prehistoric Ruins of Copan* (1896); *Researches in the Uloa Valley* (1898); *Caverns of Copan* (1898); *The Hieroglyphic Stairway at Copan* (1902); *The Serpent Motive in Ancient Art* (1906); *The Book of Chilam Balam of Chumayel* (1913); *In the Alaskan Wilderness* (1917); *Baalbek* (1919); *The Walls of Constantinople* (1921); *Ancient London* (1923); and *Rambles in Old London* (1924).

GORDON BENNETT CUP COMPETITION. See Aëronautics.

GORGUET, gôr-gā, Auguste François Marie. French painter, died at Paris, France, May 3. He was born in Paris, Sept. 27, 1862, and was educated at the Lycée of Lyons and at the École des Beaux Arts in Paris. He had many honors in art, being a lauréat of the École des Beaux Arts, receiving honorable mention at the Exposition of 1889, a medal of the second class in 1894, and a silver medal in 1900. His paintings include murals and other decorations, designs for tapestries, and illustrations for various books. He was a member of the Superior Council for Instruction in Decorative Art, on the jury of the École des Beaux Arts, and professor of design in the schools of the City of Paris. He was a Chevalier of the Legion of Honor and a member of many art and other societies in France.

GOUCHER COLLEGE. A non-sectarian college for women at Baltimore, Maryland; founded in 1885. For the first semester of the year 1927–28 there were 1053 students enrolled, distributed as follows: 330 first year students, 279 second year, 231 third year and 213 fourth year. The faculty had 107 members. The endowment funds of the College amounted to $2,357,674. The library contained 40,500 volumes. President, William Westley Guth, Ph.D., LL.D.

GRAAFF, Sir Jacobus Arnoldus Combrinck, K. C. M. G. South African statesman and merchant, died in London, April 5. He was born in 1863, and was for many years a leader among the Cape of Good Hope Dutch, being a supporter of General Botha. When the Union of South Africa was formed, Sir Jacobus Graaff, as well as his brother, Sir David Graaff, rallied their fellow Dutchmen to the new state. In 1903 he was elected to membership in the legislative council, and he continued to fill this position after he was elected to the Senate of the South African Union. In 1913–20 he was minister without portfolio, and from 1920 to 1921 he was minister of public works, posts and telegraphs. With his brother, he was active in building up a great meat-storage business, controlling the supply of South Africa, and he was director of Messrs. Graaffs' Trust, Ltd., of Cape Town and Pretoria.

GRAHAM'S LAND. See Falkand Islands.

GRAIN. See Agriculture; Rye; Wheat; etc.

GRANT, The Rev. Percy Stickney. Protestant Episcopal clergyman, died at Mount Kisco, N. Y., February 13. He was born at Boston, Mass., May 13, 1860, and after graduating at Harvard in 1883 studied at the Episcopal Theological School, Cambridge, Mass., from which he received the degree of B.D. in 1886; in that year he was ordained deacon. He became assistant minister of the Church of the Ascension in Fall River, Mass., in 1886, and the following year, after he had been made priest, he was rector of St. Mark's, of Fall River, serving until 1893, when he was called to New York as rector of the Church of the Ascension. At Fall River his parish work was very successful; he built up a large people's church, and he was active in philanthropy, organizing a large branch of the Young Men's Christian Association. He was a member of the city school board. His ministry in New York began under successful auspices, and the Church of the Ascension flourished under his charge, its debt being decreased and a large endowment fund obtained. He made the pews free and developed a number of institutional features. In 1907 he was preacher to Harvard University. Dr. Grant developed at the Church of the Ascension various unconventional practices, while his public utterances in the pulpit and elsewhere were considered radical by many. In 1907 he established a church forum which held Sunday meetings in the church, men of various religions, political and social opinions being invited to lecture on all manner of subjects, while later free-for-all discussions were held in the adjoining parish hall. These meetings provoked considerable criticism both within and without the church, as they were largely used by Socialists, Communists and others to exploit their radical notions. Dr. Grant was sustained by his vestry in the conduct of the forum, but this institution was regarded with disfavor by the bishop of the diocese, and after the latter had insisted that all speakers in the church must be made known to him and approved by him Dr. Grant abandoned this work in 1922. Previously he had espoused the cause of various radicals and others, some of whom had advocated syndicalism and violence, and he denounced any attempts to restrict the extending of Socialist doctrine in the public schools. During the World War he opposed the enforcement of the espionage law and demanded amnesty for political prisoners. In the latter part of his life he was at variance with the Protestant Episcopal authorities in regard to church doctrine and polity. He repudiated the doctrine of the virgin birth, and in 1923 became involved in a serious controversy with Bishop Manning, the head of the diocese of New York. As a result of an expressed opinion of his idea of the divinity of Christ, he received a communication from the bishop in which he was told to recant or resign. In his reply, written with the assistance of some of the ablest liberal churchmen with Modernist views, he attempted to justify his position and as a result no further action was taken by the bishop. Dr. Grant criticized the position of his church in the matter of divorce, and advocated more liberal divorce laws. At one time he announced his engagement to be married to a woman who had been twice divorced, the validity of the second divorce not being recognized by the church. A marriage contracted under these conditions, while permissible under the civil law, unquestionably would have led to Dr. Grant's deposition from the ministry, but the engagement was broken in the early part of 1924. At about this time he resigned as rector of the Church of the Ascension and retired to his country place near Mount Kisco, N. Y. He was in poor physical and mental health, but after a rest he recovered in part, and in 1925 occasionally preached at the more liberal churches in New York and elsewhere. On his sixty-fifth birthday, May 13, 1925, his friends presented to him $20,000 as a testimonial. Dr. Grant was honored with the degree of S.T.D. from Hobart College. During the latter part of his life he unquestionably was a storm centre in church circles in New York City, and his enthusiastic and radical opinions often outran his discretion, both within and without the church. His later life did not show the poise and earnestness characterizing his earlier work, and his name was associated more with controversies and incriminations than with pastoral work. He wrote from time to time, his more notable publications being: *Ad Matrem* (1905); *The Search of Belisarius* (1907); *Observations in Asia* (1908); *Socialism and Christianity* (1910); *The Return of Odysseus* (1912); *Fair Play for the Worker* (1918); *Essays* (1922); *Poems* (1922); and *The Religion of Main Street* (1923).

GRAPES. See HORTICULTURE.

GRAPHITE. The graphite industry in the United States was more active in 1927 than in 1926, there being three plants in Alabama in operation for a part of the year, though the production was limited to a few hundred tons, a portion of which was employed in the electrical industry. The production in 1926, according to the U. S. Bureau of Mines, was 2975 short tons of amorphous graphite valued at $40,500, and 4,989,200 pounds of crystalline graphite, valued at $178,842. The artificial graphite manufactured in 1926 by the Acheson Graphite Company at Niagara Falls, N. Y., amounted to 21,163,986 pounds. The graphite imported into the United States during 1926 amounted to 16,166 short tons, valued at $921,233 and the exports of graphite unmanufactured were 405 short tons, valued at $49,235; manufactured graphite exported totaled in value $463,084. Madagascar in 1927 continued to lead in graphite production, though the output was less than in 1926, the United States taking about one-third of the production. Ceylon produced more graphite in 1927 than in 1926, with greater exports to Germany and more to the United States.

GRASSELLI, CAESAR AUGUSTIN. American chemist, died at Cleveland, Ohio, July 28. He was born at Cincinnati, Ohio, Nov. 7, 1850, and in 1885 became president of the Grasselli Chemical Company which had been founded by his father, Eugene R. Grasselli, in Cincinnati in 1849. He was engaged from boyhood with this company, following a business in which his family had been engaged as long ago as 1440. In addition to his work as the head of a large firm of manufacturing chemists, Mr. Grasselli was also president of the Woodland Avenue Savings and Trust Company of Cleveland, 1887–1921, of the Broadway Savings and Trust Company, 1893–1921, and a director of the Union National Bank, all of which companies were merged with the Union Trust Company in 1921. He was a director of the Akron & Chicago Junction R. R., and of the Baltimore and Ohio system, and a member of many professional and civic organizations. He was made a Knight of the Order of the Golden Crown of Italy by Victor Emanuel III in 1910, and a Commander of the same order in 1921. In 1923 he was made, by Pope Pius XI, a Commander of the Order of St. Gregory the Great. He was one of the founders of the Cleveland Institute of Music and a founder of the Grasselli House for the Blind.

GRASSELLI MEDAL. See CHEMISTRY, INDUSTRIAL under MEDALS.

GRAY, HAWTHORNE C. American army officer and aëronaut, died November 4, in a balloon ascent in the course of which he was said to have achieved the world's unofficial altitude record. He was born in Washington, Feb. 16, 1889, and, entering the United States Army in 1917, served first in the quartermaster corps. After being commissioned captain, Feb. 21, 1920, he was assigned to the air service, and in the following year was transferred permanently to that branch. He graduated from the army balloon school in 1921, from the primary flying school in 1923 and from the balloon and airship school in 1924. He represented the army air corps in the Gordon Bennett International Balloon races at Antwerp, Belgium, in 1926, where he won second place with the balloon Army S-16, covering a distance of 599 kilometers. Gray had made two previous attempts to break the altitude record, and on May 4 had reached 42,470 feet, but the record was disallowed because he had to jump with a parachute to save his life. On his last attempt Gray ascended from Scott Field, Belleville, Ill., at 2.22 P.M. on November 4, accompanied by four escort planes which lost sight of him as he was carried over Illinois. The wrecked balloon was recovered on the following day, having been caught in a tree where it had lodged with the body of the aviator in the basket. Death was attributed to suffocation or heart trouble after the balloon ascended to over 40,000 feet according to an entry in the aviator's log and the barograph of the balloon which recorded an altitude of 43,000 feet. A severed oxygen tube, presumably cut by a knife, indicated that Captain Gray had met with an accident while on his flight. He was buried in the National Cemetery at Arlington, Va.

GREAT BRITAIN. United Kingdom of Great Britain and Ireland. A constitutional monarchy comprising the British islands. Capital, London. Although the term literally applies only to the island including England, Scotland, and Wales, it is often used as above to include Ireland, the Isle of Man, and the Channel Islands. In view of the change in the status of Ireland (q.v.) usage in this respect will probably be altered. The term British Empire applies to the United Kingdom and all its possession and dependencies, that is to say the dominions, colonies, protectorates, and other territories subject to the ultimate control of the British Parliament.

Area and Population. The area of England, Scotland, Wales, the Isle of Man, and of the Channel Islands is 89,041 square miles; the area of Ireland, 32,586 square miles. (See Ireland, Northern, and Irish Free State.) The population of England, Scotland, and Wales in 1926 was 43,970,300. For details of the census of 1921 see Year Book for 1923 and preceding Year Books.

The accompanying table from the *Statesman's Year Book* for 1927 gives a comparison of the estimated population (exclusive of army, navy, and merchant seamen abroad):

Year (30 June)	*England and Wales*	*Scotland*	*Total of Great Britain*
1914	36,960,684	4,747,167	41,707,851
1922	38,158,000	4,904,247	43,062,247
1923	38,403,000	4,901,100	43,304,100
1924	38,746,000	4,881,637	43,627,637
1925	38,890,000	4,893,032	43,783,032
1926[a]	39,067,000	4,903,300	43,970,300

[a] Provisional figures.

The provisional figures for the movement of population in England and Wales for 1926 were: Births, 694,897; deaths, 453,795; marriages, 279,321. Similar figures with respect to Scotland were: Births, 102,450: deaths, 63,775; marriages, 31,241.

In 1926 the number of British subjects who emigrated to countries outside of Europe was 284,009; and the number of British subjects who returned from non-European countries was 160,680. The destinations of British subjects leaving the United Kingdom to take up permanent residence in non-European countries in 1926 were mainly the United States, 28,740 (29,549 in 1925); British North America, 49,632 (38,662 in 1925); Australia, 44,513 (35,006 in 1925); New Zealand, 16,565 (11,730 in 1925); British South Africa, 8295 (7004 in 1925); India and Ceylon, 6799 (6584 in 1925).

Greater London, the largest city in the world, had a population in 1921 of 7,480,201 on the 443,449 acres covered by the Metropolitan and City Police Districts. Registration London, which coincides with the administrative county and nearly coincides with the London Parliamentary boroughs, had a population of 4,484,523, with an area of 74,850 acres. The estimated population of Greater London in the middle of 1925 was 7,742,212. Birmingham, the second city of England, had a population in 1921 of 919,444 (estimated June, 1925, 945,900). Liverpool continued to stand third, with 802,940 in 1921 (estimated June, 1925, 856,000); and Manchester fourth with 730.307 in 1921 (estimated June, 1925, 755,800. Other large cities with their populations are: Sheffield, 490,639 in 1921 (estimated in June, 1925, 526,900); Leeds, 458,232 in 1921 (estimated in 1925, 472,900); Bristol, 376,975 in 1921 (estimated in 1925, 385,700). Glasgow is the largest city in Scotland with a population of 1,034,174 in 1921 (estimated in June, 1926, 1,052,200); Edinburgh is next with 420,264 in 1921 (estimated in June, 1926, 424,600). The chief city of Wales is Cardiff, which had a population of 200,184 in 1921 and an estimated population of 227,100 in the summer of 1925. The census of 1921 did not include Ireland. For the populations of Australia, Canada, India, and other British possessions, see articles under those titles.

Education. Primary education is free and compulsory between the ages of five and 14. In 1925 the number of schools in England and Wales (public elementary, special, and certified) was 21,310. The number of public elementary schools on Mar. 31, 1925, was 20,734, with total accommodations for 7,062,793 pupils. The number of pupils on the registers was 5,581,468 and the number of teachers, 165,262. There are also numerous schools for the blind and deaf and for mentally and physically defective children; poor schools, nursery schools, etc. There were 110 training institutions for teachers in England and Wales with 16,881 students, of whom 15,255 were being trained to teach in elementary schools. In 1926 there were 1310 secondary

BRITISH UNIVERSITIES, 1926–27

Universities	*Number of professors, etc.*	*Number of students*
England:		
Oxford	153[e]	4,353[b]
Cambridge	801	4,663[b]
Durham (1881)	261	1,312
London (1836)	1,081[a]	9,400[c,d]
Manchester (1880)	262	2,359
Birmingham (1900)	195	1,454
Liverpool (1903)	386	2,049
Leeds (1904)	305	1,547
Sheffield (1908)	179	2,126[d]
Bristol (1909)	187	892
Reading (1926)	117	1,653
Total for England	3,427	40,808
Scotland:		
St. Andrews (1411)	116	686
Glasgow (1450)	260	4,691
Aberdeen (1494)	132	1,343
Edinburgh (1582)	291	3,843
Total for Scotland	799	10,563
Wales (1903)	353	2,339
Totals of above	4,679	45,210

[a] Comprising 252 University Professors and Readers, and 826 "Recognized Teachers."

[b] Undergraduates.

[c] Internal students. In addition there are external students, i.e., matriculated students who have not taken a degree nor been registered as internal students. The number of these is not ascertainable but is probably greater than 9,000.

[d] Includes evening students.

[e] Excluding College Tutors.

schools on the grant list with 367,290 students and 19,069 full-time teachers. In Scotland there were 2895 primary schools with an accommodation of 870,000 scholars and an average attendance of 587,000. There were 17,744 certificated teachers and 64 assistant teachers. In 1924–25 there were four training centres and three training colleges for teachers with 2496 students. In the same year there were 249 secondary schools, with a total accommodation of 179,814 scholars, and an average register of pupils of 156,272.

The accompanying table from the *Statesman's Year Book* for 1927 (see page 349) gives an estimate of the number of students and members of the teaching staffs in the universities of Great Britain in 1926–27.

Colleges exclusively for female students are: Bedford (71 teachers, etc., 600 students); Royal Holloway (33 teachers, 201 students); and Westfield Colleges (14 teachers, 143 students) in London; Newnham (15 teachers, 281 students); and Girton (14 teachers, 238 students) in Cambridge; Lady Margaret Hall (13 teachers, 137 students), Somerville College (8 teachers, 134 students), St. Hugh's College (9 tutors, 149 students), St. Hilda's College (10 teachers, 111 students), in Oxford.

AGRICULTURE. The following table from the above mentioned source gives the general distribution of the surface of the island of Great Britain, the Isle of Man, and the Channel Islands:

Divisions 1926	*Total surface (excluding water)*	*Woods and plantations 1913*	*Rough grazing land 1926*	*Permanent pasture 1926*	*Arable land 1926*
	Acres	*Acres*	*Acres*	*Acres*	*Acres*
England [a]	32,037,000	1,697.000	3,437,000	13,023,000	9,878,000
Wales [a]	5,099,000	187,000	1,626,000	2,105,000	675,000
Scotland	19,070,000	852,000 [b]	9,710,000 [c]	1,499,000	3,195,000
Isle of Man	141,000	1,400	40,000	19,000	62,000
Channel Islands (1923)	44,000	200	2,000	10,000	21,000

[a] England excludes, and Wales includes Monmouth.
[b] Area in 1914.
[c] Area in 1924.

The accompanying tables show the distribution of the cultivated area and the livestock census of 1925 and 1926:

Cultivated area	*England and Wales*		*Scotland*	
	1925	*1926*	*1925*	*1926*
	Acres	*Acres*	*Acres*	*Acres*
Corn crops [a]	5,182,075	5,099,582	1,188,730	1,125,850
Green crops [b]	2,161,805	2,224,626	571,860	569,770
Hops	26,256	25,599	......	......
Small fruit [c]	68,352	69,523	7,189	7,811
Orchards [c]	288,081	240,689	1,163	1,261
Bare fallow	468,204	417,664	9,068	6,125
Clover and rotation grasses	2,578,724	2,502,237	1,502,517	1,484,979
Permanent pasture	15,078,483	15,128,186	1,475,838	1,498,635
Total	25,755,486	25,676,111	4,705,197	4,698,170

[a] Corn crops are wheat, barley or bere, oats, mixed corn, rye, beans, peas.

[b] Green crops are mainly potatoes, turnips and swedes, mangold, cabbage, kohl-rabi, rape, vetches or tares.

[c] In Scotland all orchard land is also included against the crop, grass or fallow beneath the trees. In England and Wales orchard land is only duplicated where small fruit is grown beneath the trees. The figures for small fruit in all cases, therefore, include small fruit in orchards.

Livestock	*England and Wales*		*Scotland*	
	June, 1925	*June, 1926*	*1925*	*1926*
	Number	*Number*	*Number*	*Number*
Horses ..	1,164,240	1,128,796	185,433	178,695
Cattle ...	6,163,330	6,253,085	1,204,791	1,197,828
Sheep ...	15,974,794	16,858,685	7,118,820	7,203,134
Pigs	2,644,356	2,200,012	154,220	145,419

MINERAL PRODUCTION. The total value of all minerals produced in 1925 was £221,385,931 at the mines and quarries, of which the value of coal alone was £198,987,154. The decline of approximately 50 per cent in British coal production during 1926 naturally reflected conditions incident to the British coal strike (see preceding YEAR BOOK). The total output amounted to 125,500,000 long tons, or practically one-half of the 1925 production. Exports of about 20,500,000 tons were only 40 per cent of 1925 shipments, while imports, which normally are negligible, rose to just over 20,000,000 tons, almost equivalent to the total exports. The terms of settlement under which the industry resumed activities provided among other things for longer working hours and a generally lower minimum wage percentage, and it was probable that 150,000 to 200,000 miners employed in 1925 might not be reabsorbed by the industry.

In the export field a large amount of trade was lost to Germany, Poland, and the United States, as well as smaller amounts to other countries. Some of this trade was regained immediately, and some, it was likely, would be regained with the expenditure of considerable time and effort. In the domestic market, the shortage of supplies and the high prices of those available seriously curtailed production, and it was expected that many months would elapse before domestic demand assumed normal proportions. In regard to these and many other factors which must be considered in attempting to describe the 1927 outlook it is difficult to come to any definite conclusions. The British coal industry exhibited a rather remarkable power of recovery, and, in fact, had recovered, so far as production was concerned, much more rapidly than other industries dependent upon it. The outlook for the following years accordingly would depend in a large measure upon industrial relations within the coal industry.

In 1927 it was still too early to say whether relations between employers and employees were better or worse than before the strike. Apparently, the average per man shift output was materially larger, partly attributable to the longer hours, but in some fields also to a greater willingness of the miners to produce effectively. If the industry continued as it started, with larger man-shift output, greater use of machinery, and other efforts leading to lower cost of production, there seemed little doubt that it would quickly recover its normal position, and probably even overcome many of the difficulties which led to the difficulties of the past year or two. All this, of course, was predicated upon peace in the industry, which seemed to be partially promised by the length of the agreements which had been signed. So far as the export trade was concerned, of course, competition might be expected to be strong, and the extent to which English coal might recover its normal trade depended in some measure upon the effectiveness of this competition and also upon the world demand for coal, which had been somewhat below normal for several years. The steps which were being taken toward the more effective marketing of coal, both at home and abroad, the consolidation and establishment of selling pools and propaganda agencies, might be expected to assist in meeting competition and reestablishing the trade. See COAL; STRIKES AND LOCKOUTS; IRON AND STEEL.

25 was carried over to April, 1926, and would probably have continued through the year if there had been no general strike and no coal stoppage. It was possible, however, that trade during the early months of 1926 was somewhat abnormal on account of the anticipation of trouble and the consequent stimulated demand for stock.

IMPORTS. The value of imports of raw materials other than coal was down 17.7 per cent from the previous year, but as the average values of all raw-material imports, excluding coal, dropped considerably, there does not seem to have been any reduction in the volume. A moderate fall in imports of raw cotton and of crude petroleum and a very large increase in the import of raw rubber were the outstanding features of the import figures for 1926. Total imports of merchandise into the United Kingdom in 1926 were valued at £1,232,864,000, as compared with the 1925 valuation of £1,320,715,000. A list of the larger items figuring in this trade follows:

IMPORTANT ITEMS IN THE IMPORT TRADE OF THE UNITED KINGDOM, CALENDAR YEARS 1925 AND 1926

[*All units in thousands; that is, 000 omitted*]

Article or commodity group	*Quantity*		*Value*	
	1925	*1926*	*1925*	*1926*
Wheat ....hundredweight	96,854	96,940	£67,901	£63,226
Corn ....do.....	27,585	31,911	31,078	11,990
Meat ....do.....	30,496	30,298	119,824	111,647
Butter ....do.....	5,853	5,820	53,204	48,289
Sugar ....do.....	42,302	35,369	33,174	26,045
Tea ....pounds...	490,567	493,292	37,506	38,687
Tobacco ....do.....	190,838	198,895	17,043	17,725
Coal ....tons....	11	20,033	20	48,021
Wood and timber	([a])	([a])	46,496	39,269
Cotton, raw ....pounds...	1,894,200	1,737,100	128,720	82,677
Wool, raw ....do.....	726,900	815,700	71,797	62,905
Petroleum, crude ....gallons...	569,082	538,240	8,865	8,204
Rubber, crude ....pounds...	195,800	320,900	27,839	32,378
Iron and steel and manufactures thereof ......tons....	2,720	3,740	28,883	29,535
Nonferrous metals and manufactures thereof ....do.....	([a])	([a])	38,121	37,113
Machinery ....do.....	73	80	11,900	12,740
Woolen and worsted yarns and manufactures	([a])	([a])	15,120	14,987
Silk and silk manufactures (except apparel and embroidery)	([a])	([a])	22,641	16,913
Apparel (not of fur)	([a])	([a])	21,133	17,180
Chemicals, drugs, dyes, and colors	([a])	([a])	14,386	15,446
Gasoline ....gallons...	404,834	562,177	16,826	21,568
Leather, undressed ....hundredweight	680	623	6,669	6,116
Leather, dressed ....do.....	175	165	7,322	7,012
Automobiles, trucks, chassis, and parts	([a])	([a])	11,249	6,249

[a] Group quantities can not be stated as they are composed of different units of measure.

FISHERIES. The accompanying table shows the quantity and value of the British catch of fish in 1925 and 1926:

	1925	*1926* [a]
	Tons	*Tons*
England and Wales	676,874	625,207
Scotland	285,684	322,990
Great Britain (excluding shell-fish)	962,558	948,197
	£	£
England and Wales	14,224,682	12,700,657
Scotland	4,454,168	4,348,845
Great Britain (excluding shell-fish)	18,678,850	17,049,502
Value of shell-fish	585,628	599,693

[a] Provisional figures.

COMMERCE. According to the U. S. Bureau of Foreign and Domestic Commerce, British industry and trade were hard hit in 1926. The steady gradual improvement through the years 1922–

EXPORTS. Turning to the export of British merchandise and again excluding coal, coke, and briquets, there was a 12.1 per cent reduction in the total value of all other British goods exported during 1926 as compared with 1925. However, the decrease in volume was very much less, owing to price falls. In the critical May-November period of the coal stoppage the volume of British exports, again excluding coal products, was reduced between 6 and 7 per cent as compared with the same period of the previous year. Total exports of all British merchandise from the United Kingdom in 1926 amounted to £651,893,000 as compared with £773,381,000 in 1925. The acompanying table on page 352 shows the outstanding items in this business.

British foreign trade returns for the first half of 1927 showed imports at £617,366,000, exports of United Kingdom goods at £342,341,000, and exports of imported merchandise at £66,220,000—an excess of imports amounting to £208,805,000. This balance exceeded the unfavorable

UNITED KINGDOM EXPORTS OF BRITISH GOODS DURING CALENDAR YEARS 1925 AND 1926
[*All units in thousands; that is, 000 omitted*]

Article or commodity group	*Quantity*		*Value*	
	1925	*1926*	*1925*	*1926*
Coal .... tons ...	50,817	20,597	£50,477	£19,138
Iron and steel and manufactures thereof . .....do.....	3,731	2,988	67,856	55,077
Galvanized sheets .... do.....	718	657	13,638	12,026
Tinned and terne plates and sheets ....do.....	511	375	11,610	8,093
Steel rails, new .. . .do.....	217	171	2,104	1,522
Nonferrous metals and manufactures thereof	(a)	(a)	16,837	19,484
Cutlery, hardware, implements, and instruments	(a)	(a)	9,413	8,801
Electrical goods and apparatus	(a)	(a)	11,607	12,189
Machinery ....tons....	516	475	49,058	45,538
Agricultural machinery . ... do.....	22	19	1,694	1.451
Boilers and boiler-house plant ....do.....	56	58	2,802	2,923
Electrical machinery ....do.....	33	34	5,762	5,817
Machine tools (metal working) ....do.....	14.2	13.6	1,561	1,535
Prime movers (not electric) ....do.....	57	48	5,424	4,723
Sewing machines and parts ....do.....	29	27	2,956	2,651
Textile machinery ....do	123	102	12,157	9,957
Cotton yarns ....pounds...	189,531	168,543	35,501	21,784
Cotton piece goods ....square yards.	4,435,618	3,834,448	150,628	116,053
Woolen and worsted yarns and manufactures (except apparel)	(a)	(a)	58,934	51,416
Linen manufactures	(a)	(a)	11,208	10,019
Apparel, not of fur (but including fur gloves)	(a)	(a)	28,922	27,320
Chemicals, drugs, dyes, colors	(a)	(a)	23,625	21,639
Oils, fats, and resins, manufactured	(a)	(a)	10,227	9,448
Leather and manufactures (except apparel)	(a)	(a)	7,068	6,683
Paper and cardboard ....hundredweight	4,989	4,726	9,816	9,797
Locomotives, complete ....tons....	30	34	2,649	3,043
Rail passenger cars, complete, and parts (except axles, tires, and wheels)	(a)	(a)	1,620	2,783
Rail freight cars and trucks, and parts (except axles, tires, and wheels)	(a)	(a)	3,768	2,732
Automobiles, trucks, chassis, and parts (excluding rubber tires and tubes)	(a)	(a)	9,422	9,120
Rubber manufactures	(a)	(a)	7,616	7,946
Tires and tubes	(a)	(a)	3,079	4,524

[a] Group quantities can not be stated in these instances, as they are composed of different units of measure.

merchandise balance for the first half of 1926 by £11,000,000, thus raising the possibility of a heavier trade deficit for 1927 than resulted in 1926.

Comparisons of trade totals are by value only, but prices had changed greatly and, besides, the trade picture was further distorted owing to the 1926 period of industrial disability. In the following paragraphs an effort is made to clarify the situation by correcting 1925 and 1924 prices, on the "Economist wholesale price index," in order to get something resembling a comparable set of figures for the last three years. A comparison of the value of the 1926 trade from the beginning of May to the end of November, which was the period of the coal stoppage, with the values, corrected on the above-mentioned price basis, for the same periods of the two preceding years, of course shows heavier imports and lighter exports during the 1926 period.

UNITED KINGDOM FOREIGN TRADE, MAY TO NOVEMBER, CALCULATED ON 1926 PRICE BASIS

Period, May–November	*Imports*	*Exports*	*Reëxports*
1926........	£705,682,404	£359,841,875	£65,751,569
1925........	685,082,375	409,302,097	82,171,601
1924........	626,436,295	400,397,678	67,720,869

A similar comparison of trade during the seven months subsequent to the stoppage—that is, down to July 1, 1927—with that of the same period in the two preceding years indicated that the tendency shown in the preceding table had not been corrected, imports since the coal stoppage having continued to run in excess of normal while exports improved very little and reëxports actually lost. The 1926 interruption in transshipment business induced many foreigners to begin direct trading with their customers and, judging from the decline in reëxports, this business had not reverted to the indirect method.

UNITED KINGDOM FOREIGN TRADE, DECEMBER TO JUNE, CALCULATED ON 1926 PRICE BASIS

Period, December–June	*Imports*	*Exports*	*Reëxports*
1926–27.....	£730,679,074	£392,048,505	£77,721,469
1925–26.....	709,666,017	389,131,232	78,237,442
1924–25.....	693,498,173	427,781,475	82,878,154

British industry by 1927 had worked off the orders that accumulated during the coal stoppage, and subsequent trade returns might not be expected to reflect much of this business. On the other hand, the increase in imports would seem to indicate that to some extent the emergency foreign sources developed during the coal stoppage period continued to hold a portion of their gain in the United Kingdom market. The slight increase in British exports since the 1926 crisis did not offset the change in supply sources, as the resumption of coal business alone should more than account for such export increase. Another aspect of the situation is presented by comparing the combined corrected values of imports, exports, and reëxports for the May-November periods in three successive years with those for the December-June periods. By this comparison a fairly regular decline is shown in the total (corrected) value of trade moving. If the price correction really makes the figures comparable, there is indicated either a growing proportion of lower-priced goods or else a smaller volume of commerce—to the possible detriment of freight earnings.

FINANCE. As a result of the prolonged industrial inactivity caused by the 1926 coal stoppage, the financial year 1926–27 ended with a government budget deficit of £36,693,794. Government receipts during the year ended Mar. 31, 1927, totaled £805,701,233, which amount was £19,048,767 below the original estimates. Total expenditures, at £842,395,027, were greater than the original estimate by £9,917,027, chiefly because of increased national debt services. The following table shows the receipts by sources of revenue and the expenditures by classes, in comparison with the previous year's receipts and expenditures:

PRINCIPAL REVENUE RECEIPTS AND EXPENDITURES OF THE BRITISH GOVERNMENT DURING FINANCIAL YEARS ENDED MARCH 31

Principal items	*1926*	*1927*
REVENUES		
Customs	£103,487,000	£107,515,000
Excise	134,560,000	132,978,000
Motor-vehicle duties	18,056,000	21,393,000
Estate, etc., duties	61,200,000	67,320,000
Stamps	24,700,000	24,750,000
Excess-profit duties, etc.	2,000,000	4,500,000
Income tax	259,411,000	230,717,000
Supertax	68,510,000	65,910,000
Corporation-profit tax	11,670,000	3,970,000
Postal telegraph and telephone service	57,350,000	58,850,000
Receipts from sundry loans, etc.	14,944,000	22,854,000
Miscellaneous ordinary receipts	17,349,000	28,214,000
Miscellaneous special receipts	36,925,000	30,840,000
EXPENDITURES		
National debt services:		
Interest, etc.	38,229,000	318,584,000
Sinking fund	50,000,000	60,000,000
Road fund	17,455,000	17,378,000
Payments to local taxation accounts, etc.	14,454,000	14,172,000
Payments to Northern Ireland exchequer	4,861,000	5,767,000
Other consolidated fund services	2,372,000	2,869,000
Army, navy, and air services	119,377,000	116,730,000
Civil services	243,263,000	240,486,000
Revenue departments	65,310,000	66,414,000

In view of the 1926–27 deficit and the outlook for smaller receipts during 1927–28 under existing schedules, it was generally feared that it would be necessary to add to the burden of the British tax payers by increasing the income tax rate; but in presenting the budget proposals to Parliament on Apr. 11, 1927, the Chancellor of the Exchequer not only left the income tax charge at its present rate but estimated that only £5,500,000 would be derived from the changes which he proposed in the matter of indirect taxation. Furthermore, a budget surplus of £1,440,000 was contemplated.

PROPOSED BUDGET RECEIPTS AND EXPENDITURES OF THE BRITISH GOVERNMENT FOR THE FINANCIAL YEAR ENDING MAR. 31, 1928, COMPARED WITH THE PAST YEAR

Item	*1927*	*1928*
REVENUES		
Customs	£107,700,000	£112,120,000
Excise	134,300,000	145,760,000
Motor vehicle duties	20,100,000	24,100,000
Estate, etc., duties	66,000,000	67,800,000
Stamps	25,000,000	25,500,000
Land tax, house duty, and mineral-rights duty	1,000,000	800,000
Income tax	225,000,000	247,000,000
Supertax	64,500,000	62,000,000
Excess-profits duty, etc.	2,000,000	3,000,000
Corporation-profits duty, etc.	6,500,000	2,700,000
Postal, telegraph, and telephone services	59,400,000	62,000,000
Crown lands	950,000	1,050,000
Receipts from sundry loans	17,650,000	23,500,000
Miscellaneous ordinary receipts	18,600,000	30,500,000
Miscellaneous special receipts	26,000,000	27,000,000
Total	804,700,000	834,830,000
EXPENDITURES		
National debt services:		
Interest, etc.	304,000,000	305,000,000
Sinking fund	50,000,000	65,000,000
Road fund	19,500,000	19,500,000
Payments to local taxation accounts, etc.	14,100,000	14,300,000
Payments to Northern Ireland exchequer	5,200,000	5,400,000
Other consolidated fund services	2,600,000	3,700,000
Army (including ordnance factories)	42,500,000	41,565,000
Navy	58,100,000	58,000,000
Air force	16,000,000	15,550,000
Civil services	234,257,000	235,725,000
Customs and excise, and internal revenue departments	11,784,000	12,007,000
Post office	56,600,000	57,643,000
Total	812,641,000	833,390,000

Supplementary estimates while leaving the revenue at £834,830,000, increased proposed expenditures to £833,639,000, thus lowering the estimated surplus for the year to £1,191,000. Half-yearly figures covering the period from April 1 to Sept. 30, 1927, showed a deficit of £56,170,000 for the period, as compared with deficits of £61,724,000 a year ago and £35,972,000 two years ago. The half-yearly deficit of approximately £36,000,000 in 1925 became a yearly deficit of £14,038,000 by the end of the financial year. Likewise, the large deficit of £61,724,000 for the first half of 1926 resulted in a total deficit of £36,694,000 for the year. Hence, based upon the experience of the past two years and upon a comparison of the percentages of estimated receipts that had been received by the end of the first half of the financial years 1925–26, 1926–27, and 1927–28, a final deficit in the national revenues of the United Kingdom for the year 1927–28 seemed probable.

The aggregate gross liabilities of the United Kingdom increased from £706,154,000 on Mar. 31, 1914, to £7,623,097,000 by the end of March, 1921, and to £7,652,688,000 by the end of March, 1927. For the same dates, estimated assets were £38,280,000,000, £84,069,000,000 and £115,850,000,000, respectively, and the exchequer balances £10,435,000, £3,075,000, and £6,460,000 respectively. Net interest and management charges on the national debt increased from £18,405,000 in 1914, to £328,832,000 in 1921, thence declining to £318,421,000 in 1927.

SHIPPING. No later figures on shipping were available at the end of the year than those given in the preceding YEAR BOOK, when the net tonnage of vessels in foreign trade which entered British ports in 1925 with cargoes was 52,121,842 tons, an increase of 220,141 tons over 1924 and of 3,187,485 tons over 1923. Clearances with cargo totaled 58,026,943 tons, a decrease of 2,932,385 tons from the 1924 figures and of 9,892,822 tons from that of 1923. See SHIPBUILDING; and SHIPPING for statistics of the merchant marine and the shipping launched during the year in Great Britain.

RAILWAYS. According to the *Railway Age*, the financial results of operations of the group railways of England in 1926—i.e. the London, Midland & Scottish, the London & North Eastern, the Great Western and the Southern—showed even a less favorable return than was expected a year ago in reporting results for the preceding year. Reference was then made to the depression in the coal trade and in the iron and steel industry and also in the menace of motor competition with passenger traffic and it was pointed out that although there were indications that some improvement might be expected in 1926, the coal problem made everything look uncertain. The first quarter of 1926 seemed to bear out the views of those who were inclined to be slightly optimistic. The results of the four group companies in aggregate showed an increase as compared with the first quarter of 1925, of $1,100,160 in passenger revenues and of $4,122,800 in freight revenues, a total of $5,122,440. However, by the end of the year there was a decrease of $134,388,440, or 14¾ per cent, as compared with the previous year, toward which passenger traffic contributed $42,796,880 and freight traffic $91,591,560. In addition there was a decrease in gross receipts from other business amounting to $7,000,000. In four years since amalgamation capital expenditures have increased by $130,000,000. The estimate of the expenditure to be made in 1926 at the beginning of the year was a little less than $35,000,000, but due to curtailment of expenses by the different roads this figure was brought down.

Comparisons of gross receipts indicate that in three years the revenue of the group companies had decreased about one-sixth. In round figures the London, Midland & Scottish gross revenues has decreased about $70,000,000, the London & North Eastern about $65,000,000, the Great Western about $35,000,000, and the Southern about $5,000,000. The Southern was the only one of the group companies to improve its gross revenue in 1924 and 1925. Declines were attributed, according to the railways' report, to several causes among which were lower rates, both freight and passenger, the decline in export coal trade, the depression in the iron and steel business, motor vehicle competition, and the general and miners' strikes in 1926. The Ministry of Transport reported that gross receipts of the group companies in 1922 prior to their amalgamation amounted to approximately $962,000,000 so that the decrease over a period of four years is a little less than $250,000,000. However, the companies were able to make some saving in operating expenses in 1926, the saving amounting to a little less than $60,000,000, and yet this left a net revenue of more than $85,000,000 below that of 1925, the net revenues of 1926 amounting to approximately $80,000,000. The ratio of operating expenses to income averaged 90.68 per cent for the companies as a whole, varying from 84.41 per cent on the Southern to 93.91 per cent on the London & North Eastern.

With regard to passenger traffic decrease the railways reported that the greatest decline had been in the third class traffic, where the London, Midland & Scottish lost 40,000,000 passengers, the London & North Eastern over 30,000,000 passengers, the Great Eastern 14,000,000 and the Southern 13,000,000. They reported that the general strike afforded an opportunity for motor vehicles to make a fresh attack on traffic hitherto carried on rails and also that the curtailment of train service to conserve coal supplies still further weakened the railways in their fight against motor competition. With relation to freight traffic it was shown that revenue per ton remained fairly constant; however, coal tonnage diminished by 88,000,000 tons, general merchandise by 8,500,000 tons, other minerals by 17,000,000 tons, and the number of livestock declined by 600,000 head. Figures showing the net returns on the investment for 1926, 1925 and 1913, showed that 1926 declined about 50 per cent as compared with 1925 and about 70 per cent as compared with 1913.

The British Railway Rates Tribunal, which was set up under the transportation act of 1921 to fix the standard charges for the railways to operate from an appointed day, gave its final decision in the summer of 1927. The "appointed day" was fixed as Jan. 1, 1928, from which date the standard charges on the railway should operate. The fixed gross revenues of the four railway groups had been set at £196,632,901, and the standard revenue at £50,057,847. Of the standard revenue, the figures for the four railways are: London, Midland & Scottish, £20,326,622; London & North Eastern, £14,787,733; Great Western, £8,312,013; and Southern, £6,631,379. These standard charges had been provisionally approved Dec. 31, 1926. Speaking generally, the standard basis of goods (freight) and of mineral rates was to be 60 per cent above the base rates prevailing Jan. 14, 1920, for both classes, and the exceptional rates. By no means, however, were all rates to be brought up to the new standard, for the companies realized that this would be impossible if certain classes of traffic were to be retained. In addition, the tribunal authorized as standard the present ordinary rates of five cents a mile for first class passengers and three cents a mile for third class. At the end of the first year's working the railway act provides that the standard charges would be reviewed by the Railway Rates Tribunal. If it was found that the net income of any company is substantially in excess of or below the standard revenues and likely to continue so, the tribunal was directed to readjust the standard charges so as to effect either a reduction in subsequent years of 80 per cent of such excess or an increase and thus enable the standard revenues to be earned.

ARMY AND NAVY. The military system of the United Kingdom provides for a regular and territorial army and a reserve. Troops in the regular army serve both at home and abroad. Territorial troops serve only at home in peace times. The regular army in 1927–28 totaled 210,436, of whom 60,223 were in India. The strength of the territorial army on Jan. 1, 1927, was 146,522. See MILITARY PROGRESS.

The accompanying table from the *Statesman's Year Book* for 1927 shows the number of classes of the more important units of the British fleet, including the ships and vessels of the Dominions:

Class	*Completed by end of* 1925	1926	1927
Battleships and battle cruisers ..	22	22	20
Cruisers	50	49	54
Aircraft carriers and tenders ...	7	7	7
Flotilla leaders and destroyers ..	207	174	176
Submarines	65	56	56

See also NAVAL PROGRESS.

GOVERNMENT. George V, born June 3, 1865, was the reigning monarch during 1927. He succeeded his father, Edward VII, on May 6, 1910. The cabinet during 1927 was as follows: Prime Minister, First Lord of the Treasury, and Leader of the House of Commons, Stanley Baldwin (appointed November, 1924); Foreign Affairs, Sir J. Austen Chamberlain; Privy Seal and Leader of the House of Lords, Marquis of Salisbury; President of the Council, Earl of Balfour; Chancellor, Viscount Cave; Chancellor of the Exchequer, Winston S. Churchill; Home Affairs, Sir William Joynson-Hicks; Colonies, Leopold C. M. S. Amery; War, Sir L. Worthington-Evans; India, Earl of Birkenhead; Air, Sir Samuel Hoare; Admiralty, W. C. Bridgeman; President of the Board of Trade, Sir Philip Cunliffe-Lister; Health, Arthur N. Chamberlain; Agriculture and Fisheries, Lt.-Col. Walter E. Guinness; Scotland, Sir John Gilmour; Education, Lord Eustace Percy; Labor, Sir Arthur Ramsay-Steel-Maitland; Duchy of Lancaster, Viscount Cecil of Chelwood; Works, Viscount Peel; Attorney General, Sir Douglas McGarel Hogg; Pensions, George C. Tryon; Transport, Wilfrid W. Ashley; Solicitor-General, Sir Thomas W. H. Inskip; Postmaster-General, Sir William Mitchell-Thomson; Lord Advocate, William Watson; Solicitor-General for Scotland, A. M. MacRobert. Viscount Cecil resigned August 29, and was succeeded October 19 by Ronald John McNeill, later Lord Cushenden.

. HISTORY

AFTERMATH OF THE GENERAL STRIKE. As noted in the preceding YEAR BOOK, the general strike of 1926 completely tied up industry and transportation and cost the British public an untold sum. From the point of view of the workers absolutely nothing was accomplished. The coal strike which was the cause of the general strike was not settled until the latter part of November and the final agreement was a complete surrender on the part of the trade unionists, a surrender that was indubitably hastened by the spectre of hunger and poverty. Many observers felt then and later that the entire labor situation in Great Britain was merely in a transitory stage and that as soon as the war chests had been refilled and the dire needs of the workers satisfied the struggle against the Tory government and the capitalist class would be renewed with a greater chance of success because of the lessons learned in the 1926 strike.

The effects of the upheaval were far reaching and there had been no complete return to normalcy during the entire year 1927. A review of the trade statistics of practically every other nation in the world will show some connection with the British general strike. The coal exports, particularly of Poland, Germany, Belgium, etc., were vitally affected by the cessation of activities in the British fields. The other side of the question, is of course, Will the countries whose exports were increased be able to return to the pre-strike conditions without seriously affecting their labor, transportation, and financial agencies?

The strike was particularly hard on the members of the British Empire, such as Australia, New Zealand, Canada, etc. The chief market for many of these countries was Great Britain, but with the suspension of production and the very slow recovery of industry the markets as well as the purchasing power of the island mother country were seriously curtailed, and were directly reflected in a severe falling off in the exports of many of the component parts of the Empire. Even the latter part of 1927 did not show an appreciable return to 1925 conditions. In Great Britain itself, the financial and commercial activities of the country suffered from a creeping paralysis which responded very slowly to treatment. In order to keep industries running it was necessary to import large quantities of coal and raw materials depending upon coal from the United States and European countries, with the consequent results that basic costs of production mounted to such a height that competition with other countries practically killed several very lucrative branches of British trade and commerce. This was especially true in South and Central America, where the United States and Germany made rapid advances in commerce largely at the expense of Great Britain.

Great Britain's balance of visible trade, has, of course, always been against her, but, for the first time in years, the addition of invisible items of trade to visible items failed to produce a favorable balance. The concomitant effects such as the increase of unemployment and the increase of doles certainly did not help to improve the general depression and lethargy that prevailed throughout the country in the last part of 1926 and almost during the entire period of 1927.

On January 20 the long standing dispute between the trade union executives and the General Council of the Trades Union Council was considered in London. Although the Council was severely criticized for its handling of the general strike it received a vote of approval and the executives of the miners' unions a vote of censure for failure to follow the advice of the Council. This was in the nature of a post mortem and had very little effect one way or the other. The chief item of interest in labor circles before the opening of Parliament was the threat on the part of the government that it was going to introduce legislation to make general strikes illegal and compel the incorporation of trade unions and some regulatory control over their funds.

THE OPENING OF PARLIAMENT. Parliament reopened for the spring term on February 8, and the King's speech was delivered. As reported in *Current History* it expressed satisfaction at the entry of Germany into full membership in the League of Nations. This step was declared to have strengthened the League and furthered the restoration of normal international relations in Europe. The most controversial matter upon which legislation was proposed was that of industrial disputes. The King announced that Parliament would be asked to define and amend the law on this subject. During the subsequent debate Premier Baldwin made it fairly clear that the government intended only to amend the law with reference to the unions in connection with strikes, and that at present it would not touch the question of money levy by the unions on their members for political uses. The Labor party served notice that any attempt on the part of the government to curtail in any way the rights of labor organizations would be fought to a finish by organized labor. One of the most important proposals was the government's invitation to Parliament to revise and consolidate the existing laws relating to insurance against unemployment (doles). Other matters that were to be brought before Parliament dealt with the improvement of the position of leaseholders, poor law reform, factory legislation, and agricultural relief. The Labor opposition criticized the speech for its failure to mention franchise reform.

In a by-election held in Premier Baldwin's own section, the Labor candidate was successful, and the opposition party took this occasion to call again to the attention of the country that faith in the Baldwin government was rapidly dwindling, this being the sixth success of Labor since the general election in 1924. The opposition party also caused a slight flurry on February 17 when it strenuously objected to appropriating $35,000 toward the expenses of the Duke of York, who was to take a trip abroad. Premier and Mrs. Baldwin were subjected to a hostile demonstration when they traveled to Wales to express their sympathy for the victims of a mine disaster. They were jeered and their car was surrounded by angry miners. While Laborites in general were not sympathetic toward this outburst it is mentioned merely as an indication of the swing toward the Left, which was distinctly noticeable not only in Great Britain during 1927, but in Germany and France as well.

On April 4, the government introduced its long awaited bill relating to trade unions and strikes. As summoned up by *Current History* the provisions were as follows:

1. Although general strikes are not specifically mentioned in the bill, they are obviously included under the terms of the first clause, which declares illegal "any strike having any object besides the furtherance of a trade dispute within a trade or industry in which the strikers are engaged if the strike is designed to coerce the government or intimidate a substantial portion of the community." This means that a sympathetic strike on a large scale would be illegal. The penalty for an illegal strike is a fine not exceeding £100 or, on indictment, imprisonment for a term not exceeding two years. No one refusing to obey a strike order shall be expelled from a union or fined, and, if expelled, the courts can order him compensated from the funds of the union.

2. The law for the prevention of intimidation is strengthened by another clause in the bill: Strikers are forbidden to attend near any one's house or place of work if the number or the manner is calculated to intimidate a person therein. Picketing the home of a worker becomes a criminal offense. Intimidation is defined as causing in the mind of a worker a reasonable apprehension of injury to him or any member of his family or damage to property, injury including boycott or exposure to hatred, ridicule and contempt.

3. The political funds of trade unions, which are largely used for the election of Labor candidates to the House of Commons, are dealt with by reversing the procedure as established by the existing law. So far a member of a trade union who does not wish to contribute to the political fund of his union has had to intimate his desire to contract in writing. The proposed reform is that no member shall be required to contribute to the political funds of his union unless he delivers a written notice of his willingness to contribute, and that if he has delivered such a notice he may withdraw it the following year.

4. Civil servants are prohibited from belonging to trade unions unless such unions are confined to civil servants only and are independent of any outside union. This provision is designed to prevent civil servants' unions from becoming affiliated with the Labor party and other working-class organizations.

5. Municipal authorities are prohibited from making it a condition of employment that a person must belong to a union.

6. The Attorney General is given power to apply for an injunction to restrain any use of the funds of a trade union in contravention of the provisions of the bill.

The labor element looked upon the measure as a declaration of class war and even some of the Conservative members of the House of Commons were undoubtedly surprised at the severity of some of the provisions. The complete text of the bill may be found in *Current History* for June on pages 447–49. The bill passed its second reading in the House of Commons of May 5 with a majority of 215. As a general rule, after the second reading a bill passes to the committee stage where it is discussed by the Committee of the Whole and taken apart piece by piece. The Labor party announced that it had more than 400 amendments to propose to the bill. As a result of this announcement Prime Minister Baldwin decided to apply the closure rule to the bill and limit debate to twelve days. This so incensed the Labor members that they left the House in a body and the Conservative members left passed the closure rule without any opposition. The Labor members appeared the next day, however, apparently feeling that such methods would not aid their cause in any way. The bill passed its third and final reading on June 23, rather the worse for wear because of the twelve-day period of debate, but nevertheless still bitterly opposed by the Laborites. The changes brought about did not materially weaken the bill, but did narrow its scope to some extent and changed some of the harsh measures for its application. Parliament ended its sessions on July 29, with the passage of the Trade Unions' Bill as the one important and noteworthy act of legislation.

SITUATION AT THE END OF THE YEAR. After a comparatively quiet summer, Parliament reassembled for the winter session in November. While no legislation of actual importance was passed before the close of the year the struggle between the government and the opposition continued apace. Ramsay MacDonald, former Labor premier, and Lloyd George, former Liberal premier, attacked the attitude of the Baldwin government at Geneva and accused it of being largely responsible for the failure of the disarmament movement. The opposition was not strong enough, however, to pass a vote of censure. To the contrary, a vote of approval was passed, although the government must have realized that the common people of the country were keenly interested in disarmament in particular and foreign affairs in general and the responsibility for failure in either one of these fields would be placed, as far as possible, at the door of those responsible.

The opposition also failed to have a vote of censure of the government passed on the issue of failure to take proper steps to alleviate the unemployment situation in industry in general and in the coal mining industry in particular. Failing to get a reply from the Prime Minister himself (which is customary in British parliamentary practice on a vote of censure), the opposition again tried to censure the government for this breach of procedure on the part of Mr. Baldwin, but once again failed. It was quite obvious to all competent observers that the opposition parties, both the Laborites and Liberals, as well as the majority party, were jockeying for positions of advantage in the next elections. Normally these elections would not take place until 1929, but there seemed to be an undercurrent of opinion that the Baldwin government would appeal to the people at any time in advance of the legal date for elections if it saw a sure opportunity of success. In the meantime Labor was doing everything it could to strengthen its front, and Lloyd George was placing a huge fund in the hands of his branch of the Liberal party, with the hopes of gaining enough seats to control the balance of power between the Conservatives and Laborites in the new Parliament.

For an account of the break between Great Britain and Russia consult the historical section of the article on RUSSIA. Also consult articles on the LEAGUE OF NATIONS; MILITARY PROGRESS; NAVAL PROGRESS; ARBITRATION; PEACE AND PEACE MOVEMENTS; SHIPBUILDING; SHIPPING; CHINA.

For Trades Disputes and Trades-Union Act, see TRADE-UNIONS.

GRECIAN ARCHÆOLOGY. See ARCHÆOLOGY.

GREECE. A republic in southeastern Europe, comprising the lower Balkan peninsula and many islands in the Ægean Sea; formerly a constitutional monarchy. King George II was forced to leave Greece Dec. 19, 1922, and the republic was established Apr. 13, 1924, as the result of a plebiscite. In continental Greece are included Macedonia, Western Thrace, and Epirus; the chief island possession of Greece is Crete (q.v.). Capital, Athens.

AREA AND POPULATION. The total area of Greece before the Balkan Wars of 1912–13 was 25,223 square miles; as a result of these wars Greece added 20,730 square miles to her territory. According to the Treaty of Lausanne (1923) Greece obtained a further area of 3182 square miles; the total area of the present Greek republic is 49,912 square miles. According to the census of 1920 and that of the refugees made in April, 1923, the population was 5,810,221. It was estimated that between August, 1922, and January, 1925, 1,350,000 Greek refugees returned to Greece from Asia Minor, and that the total population of the country might be put at 6,200,000.

The work of the Refugee Settlement Commission in installing refugee families continued to make progress. During 1926 it was reported that 3456 families were settled in Macedonia and 1862 families in western Thrace. An adjustment was also reached during the year, covering compensation due the refugees. This arrangement involved the issue of special bonds to a value of 3,000,000,000 drachmas, bearing interest at 8 per cent and guaranteed by the State. These bonds were to be paid off chiefly from the proceeds of sales of property awarded to the Greek government under treaty and by it placed under the administration of the National Bank for disposition.

EDUCATION. Education is compulsory for all children between the ages of seven and 12, although the law is not very well enforced in the rural districts. The latest school census showed 7200 primary schools with 13,996 teachers and 499,084 pupils. For secondary education there were 650 high schools with 2523 teachers and 86,500 students. In the same year there were 24 commercial schools with 188 teachers and 3607 pupils. There are two universities in Athens: the National University and the Capodistria University with 61 professors and 9799 students. A third university, founded at Saloniki, began work in the fall of 1925. There are also various technical and agricultural schools.

PRODUCTION. Agricultural production during 1926 was adversely affected by unfavorable weather conditions. The cereal crop was estimated at 790,000 tons, as against 940,000 tons in 1925; currants were placed at 140,000 tons, as compared with 168,000 tons in 1925; and raisins at 15,000 tons and 28,000 tons respectively. Increased crops, however, were anticipated for olives, cotton, and figs, and the tobacco crop was expected to be slightly above the 1925 figure of 55,800 tons. A contract was signed with an American company in 1925 for the important work of draining and irrigating the Saloniki Plain, involving a total expenditure of approximately $25,000,000. The contract included the following: A complete survey of the area to be reclaimed; the preparation of a drainage project accompanied by a report on and estimate of the cost of the works proposed; and the execution of the approved project. This contract was ratified in October, 1925, and by the end of 1926 engineers had surveyed over 800 square kilometers of territory. Active construction was begun about the middle of 1926. When the work prescribed by the contract is completed, which will require about four years, approximately 326,000 acres of extremely rich soil, now useless marshland, will be ready for agriculture. The work being carried out in 1927 consisted of the draining of the Ardzan and Amatovo Lakes by means of a canal with a bed-width of 12 meters and 12 kilometers in length which discharges into the Vardar River; also the work of confining the floods of this river with protective embankments.

Industrial production in general in 1926 compared favorably with 1925, although uncertain conditions had a restraining effect on business expansion. The tobacco manufacturing industry was slightly less active than in 1925; production of cigarettes totaled 4813 metric tons as against 5186 in 1925, while the value declined from 233,300,000 drachmas to 216,000,000 drachmas. Olive-oil production estimates indicated a substantial increase, from 44,830 in 1925 to 63,045 metric tons in 1926, valued at 896,000,000 and 1,640,000,000 drachmas, respectively. Wine production declined from 200,000,000 kilos to 170,300,000 kilos, but prices were higher. Operations of the textile manufacturing industries were generally maintained on the same level as in 1925, but lower prices prevailed for cotton products, the chief item of manufacture. The chemical industry showed little change, while business in the leather and tanning industries declined.

COMMERCE. Imports during 1926 were valued at $127,008,000 and exports at $65,199,000, thus indicating an adverse balance of $61,809,000. This compares with 1925 imports valued at $153,411,100 and 1925 exports valued at $67,237,020. Exports from Greece to the United States, in 1926, declared through American consulates, showed a value decrease of nearly 22 per cent, as compared with 1925. The decrease in Greek exports was due almost wholly to the major export commodities—tobacco and olive oil. The tobacco decrease was more one of value than of quantity, as the 1926 production was good in all except the best grades; but the decrease in olive oil export was due to the fact that the 1926 production in Greece was very low. There was, however, a 50 per cent increase in shipments of emery ore to the United States, and exports from the new carpet and rug industry, largely carried on by refugees, showed a marked improvement, totaling about one-fifth of Turkey's 1926 rug exports to the United States. There was also an increase in opium exports, possibly resulting in part from decreased shipments from the Smyrna markets. Several of the less important commodities also showed improvement.

GREEK EXPORTS TO THE UNITED STATES, DECLARED THROUGH AMERICAN CONSULATES

Commodity	*1925*		*1926*	
	Quantity	*Value*	*Quantity*	*Value*
Tobacco ....pounds....	23,498,415	$22,765,607	20,454,615	$14,627,413
Currants ....do......	14,679,354	956,267	13,754,481	745,776
Hides and skins ....number....	896,110 [a]	812,344	814,998 [b]	738,402
Olives, in brine or oil ....gallons....	1,285,300	718,987	969,905	587,778
Carpets and rugs ....square yards..	48,683 [c]	274,463	84,751 [d]	474,478
Opium ....pounds....	39,050	319,152	61,850	454,375
Figs ....do......	4,664,210	226,137	6,922,812	351,082
Chrome ore ....tons.....	14,843	225,173	19,895	269,754
Furs ....number....	79,698 [e]	112,927	215,942 [f]	206,817
Licorice root ....pounds....	2,254,923	76,768	3,810,385	145,789
Olive oil ....do......	7,156,538	829,821	1,001,244	107,705
Emery ore ....tons.....	1,770	54,174	2,113 [g]	72,803
Marble ....cubic feet...	7,700	36,367	21,037	72,405
All others	....	679,555	....	1,111,377
Total	....	28,082,742	....	19,910,949

[a] Plus 336,769 pounds.
[b] Plus 284,891 pounds.
[c] Plus 11 pieces.
[d] Plus 43 pieces.
[e] Plus 13,811 pounds.
[f] Plus 64,955 pounds.
[g] Smyrna exports to U. S. in 1926 totaled 1,800 tons, valued at $26,852.

FINANCE. Progress toward a better financial position in Greece during 1926 was hindered by the unsettled political situation. Actual preliminary results indicated budget deficits, although theoretical surpluses were shown in the budget drafts. Only approximate data are available on recent budget results, but the actual situation was reflected to some extent in the estimates drawn up for the 1927–28 fiscal year which included deficits from previous years totaling 2,500,000,000 drachmas. Provision for covering this deficit was made by expected loans from the League of Nations. Unsettled conditions in the country during the war hampered the formulation of a definite financial policy and retarded the flow of foreign capital into Greece.

The Greek pledged revenues under control of the International Financial Commission showed increased collections in 1925 as compared with 1924 ($39,544,618 as compared with $26,206,216).

RETURNS FROM GREEK PLEDGED REVENUES (EXCEPT SERVICE OF REFUGEE LOAN) ADMINISTERED BY THE INTERNATIONAL FINANCIAL COMMISSION FOR 1925

[*In drachmas, for which exchange averaged $0.0179 in 1924 and $0.0156 in 1925*]

Source of revenue	*1924*	*1925*
Government monopolies:		
Salt	26,015,366	37,822,773
Petroleum	89,374,657	101,595,670
Matches	35,630,609	41,783,269
Playing cards	8,142,212	9,274,267
Cigarette paper	13,964,748	17,821,897
Tobacco	354,583,372	496,243,600
Emery ore	22,160,199	22,060,802
Stamp tax	80,340,880	93,147,705
Customs revenue (from ports of Piraeus, Saloniki, Laurium (Ergasteria), Patras, Volos, Corfu, and Kavala)	828,995,674	1,007,788,690
Total	1,459,207,717	1,827,088,673

COMMUNICATIONS. Shipping activity during 1926 showed little change from 1925. A total of 31,118 ships aggregating 18,418,394 tons entered Greek ports, as compared with 31,964 of 18,067,510 tons in 1925. The year 1926 was a very prosperous one for Greek railways. Of the eight systems which comprise the entire Greek railway mileage of 2743 kilometers, the State railways, operating 1408 kilometers, showed the largest net income amounting to 13,091,427 drachmas. Operating revenues of the state railways reached 262,055,896 drachmas and other revenues 1,090,916 drachmas, while operating expenses were 250,055,385 drachmas. The rolling stock in operation consisted of 107 locomotives, 2256 freight cars, and 183 passenger cars. All equipment was in good condition. There were practically no changes in Greek railway operation during the year, very little construction was done, and none was proposed for 1927.

GOVERNMENT. By a plebiscite on Apr. 13, 1924, the Republic of Greece was established. A new constitution was published on Sept. 24, 1926. It prescribed among other things that there should be an Upper House of 150 members, that both houses should be elected by universal, direct and secret voting on a basis of proportional representation, that they should elect the president for a term of five years, and that no premier should hold his office for more than one year. Provisional President at the beginning of 1927, Admiral Konduriotis. The ministry as constituted on Dec. 4, 1926, was as follows: Pre-

mier, A. Zaimis; Foreign Affairs, M. Michalapoulos; War, General Mazarkis; Marine, M. A. Kanaris; Interior, M. Tsaldaris; National Economy, M. G. Merkouris; Agriculture, M. G. Papanastasiou; Social Insurance, M. C. Kirkos; Justice, M. C. Angelopoulos; Finance, M. Kaphandaris; Communications, General Metaxas; Education, M. A. Argyros.

HISTORY. As noted above under *Government*, a cabinet headed by M. Zaimis took over the control of the country during the latter part of 1926. While this ministry was almost solidly backed up by the legislative branch of the government it was beset with several difficulties of a serious nature. The chief of these difficulties was the muzzling of the army and officers to prevent any further *coups* such as that of General Pangalos, which was noted in the preceding YEAR BOOK. General Pangalos was imprisoned on the island of Crete, until such time as the new government could determine what action should be taken in his case. As a further evidence of the restoration of orderly government the Assembly early in February adopted an amendment to the constitution providing for the establishment of a senate composed of 120 members.

Another difficulty of the cabinet was the question of the submission of the new constitution. The provisional President, Admiral Konduriotis, presented his resignation because of the failure of the Zaimis cabinet to bring this matter up, but was persuaded to withdraw it and hold over until September. A third difficulty of the cabinet was that of finance. The huge deficits which had been piling up, the depreciation of the drachma, and the need for another refugee loan, were all pressing problems, and in August resulted in such a severe ministerial crisis that the coalition cabinet of M. Zaimis fell. It was reorganized, however, under the leadership of the same premier, without the support of the Popular party.

The war debt of Greece to the United States was finally settled on December 5, when the two governments reached an agreement by the terms of which Greece will pay $19,659,836 over a period of 62 years with an interest rate of 3 per cent, and will borrow an additional $12,167,000 for twenty years at 4 per cent, to be used for refugee settlement work.

GREEK ARCHÆOLOGY. See ARCHÆOLOGY.

GREENHILL, SIR GEORGE. British mathematician, died in London, February 10. He was born Nov. 29, 1847, and after graduating at Cambridge became a fellow of Emmanuel College and a mathematical lecturer, besides being one of the examiners for the mathematical tripos. He became professor of mathematics in the artillery college at Woolwich, teaching the advanced class of officers. His mathematics found extensive application in gunnery and aëronautics. He was a student and an admirer of the theories of Newton without being disturbed by such modern doctrines as those of relativity and atomic dynamics. He was knighted in 1908. His writings include: *Differential and Integral Calculus With Applications* (1885); *Applications of the Elliptic Function* (1892); *Hydrostatics* (1894); *Notes on Dynamics* (1908); *Report 19, Theory of a Stream Line With Application to an Aëroplane* (1910, 1916); *Dynamics of Mechanical Flight* (1912); and *Report 146, Gyroscopic Theory* (1914).

GREENLAND. The largest island in the world next to Australia; the only colonial possession of Denmark. The area is variously estimated at from 826,000 to 849,000 square miles. The settled portion, the only part included in Denmark's colony, has an area of 46,740 square miles, with a population, according to the census of 1921, of 14,355, of whom 274 were Danes. The largest settlement is Sydproven, with a population of 901, and the smallest, Skansen, with a population of 49. The interior remains unknown in detail, but the main geographical features are understood. Nearly the entire country consists of a plateau from 2000 to 3000 meters above the level of the sea, which means that it is covered by a thick, permanent coat of snow and ice, only about one-twenty-fifth of the surface being free from it and suitable for cultivation. Most of the inhabitants are located on the coast or on adjacent islands. The trade with Denmark in 1924 consisted of 5,510,000 kroner of imports and 2,486,000 kroner of exports. The trade, chiefly in seals, sealskins, fox skins, and oil is a monopoly of the Danish government. At the head of the government is a director who resides in Copenhagen.

This arctic land kept in touch with the activities of the world in general during 1927. On the east coast there have been maintained meteorological stations, equipped with radio. The Danish station at Angmagsalik sent weather bulletins throughout the year, while the Norwegian force at Mygbutket, 73° 30′ N., sent weather reports during the fishing season to the Norwegian station on Jan Mayen. On this coast the Danish explorer Lange Koch, the Greenland explorer, made extensive geological studies in and near the Scoresby Sound region. His collection of eight tons of fossils, representing three geological ages, contains many palms and like plants, which indicate that Greenland once enjoyed a tropical climate. On the west coast, the Danish observatory at Godhavn was enlarged and its scope of scientific research extended. The local authorities were coöperating with the Hobbs expedition, of the University of Michigan. The weather station established by Hobbs at the head of Kangendlugsdak Fiord was to be occupied during the winter 1927–28, while another was to be maintained on the inland ice.

GRENADA, gre-nä′dȧ. An insular possession of Great Britain in the Windward group of the West Indies. Area, 133 square miles; population at the census of 1921, 66,302; estimated in December, 1925, 70,184. Grenada includes half of the Grenadine Islands, the other half being administered from St. Vincent. The capital is St. George with a population of about 5000. In 1925 the movement of population was: Births, 2354; deaths, 1162. In 1925 there were 58 government and government-aided schools for elementary education with 11,480 pupils and one secondary school. The chief products which are also the chief exports are: Cacao, spices, lime juice, cotton, and cotton seed. The production of sugar was rapidly increasing; in 1925, the local production of rum was 47,327 proof gallons. In the same year the revenue was £146,218 and the expenditure, £112,447. The exports were £434,083 and the imports, £431,807. The total shipping entered in 1925 was 417,745 tons, nearly all British. The colony is under the governor of the Windward group, but has its own institutions. Governor and Commander-in-Chief of the Windward Islands, including Grenada, Sir Frederick Seton James; Colonial Secretary for Grenada, H. Ferguson.

GRESSMAN, Hugo. German Old Testament scholar, dean of the Institution Judaicum of the University of Berlin, died in Chicago, Ill., while on a lecture tour, April 7. He was born in Mölin, Holstein, Mar. 21, 1877, and was educated at Greifswald, at Göttingen (where he obtained his Ph.D. in 1899) and at Marburg and Kiel. In 1906 he was sent to Jerusalem under the auspices of the German Archæological Institute, with other German scholars, and on his return he became a professor in the University of Berlin. He carried on important archæological research work in the Biblical territory, and founded the Institution Judaicum at the University of Berlin. He was president of the German Religious Scholars' Association. He was known for his discovery of a new group of Jewish catacombs in Rome. Dr. Gressman had arrived in the United States on February 26, and after lecturing at Harvard and Yale had gone to the University of Chicago, where he lectured a few days before his death. His lectures in the United States were delivered at the invitation of the Jewish Institute of Religion under the terms of a foundation established by Joseph Stroock, and providing for a chair to which leading non-Jewish scholars throughout the world were to be invited. Dr. Gressman wrote extensively, his more important papers including: *Studien zu Eusebs Theophanie* (1905); *Der Ursprung der Israelitisch-Judischen Eschatologie* (1905); *Ausgrabungen in Palästina und das Alte Testament* (1908); *Palästinas Erdgeruch in der Israelitischen Religion* (1909); *Alt-orientalische Texte und Bilder zum Alten Testamente* (1909); *Des Gilgamesch-Epos Erklärt* (1911); and *Mose und Seine Zeit* (1913).

GRICE, Ettalene M. Assistant professor of Assyriology and Babylonian literature at Yale University, died at Westville, Conn., December 4. She was born at Portsmouth, Ohio, in 1887, and graduated at the Western College for Women, beginning her Semitic studies at Bryn Mawr College in 1912 and receiving the degree of Ph.D. from Yale in 1917. She was at that time associated with Prof. Albert Clay as a special student, research fellow, lecturer and assistant in care of the Babylonian collection, and from 1919 to 1925, as holder of the Kohut Fellowship in Assyriological research, she made many contributions in that field. After the death of Professor Clay she was made assistant professor, and she was also assistant curator of the Yale Babylonian collection.

GRIGGS, John William. American jurist, died at Paterson, N. J., November 28. The son of a farmer, he was born at Newton, N. J., July 10, 1849, and after graduating at Lafayette College in 1868 was admitted to the bar in 1871 and began practice at Paterson. In 1876–77 he was a member of the New Jersey General Assembly, and from 1882 to 1888 a member of the State Senate, serving as president in 1886. He was elected Governor of New Jersey for 1896–99, being the first Republican Governor in thirty years, but resigned in January, 1898, to become attorney general in the cabinet of President McKinley. In 1901 he resigned this position to resume the practice of law, but a short time afterwards he became a member of the Permanent Court of Arbitration at The Hague, serving until 1908. In addition to his public work, Mr. Griggs was attorney for a number of important corporations such as the Erie R. R., the Delaware, Lackawanna and Western R. R., and was president of the Paterson National Bank and the Marconi Wireless Telegraph Company of America before its absorption by the Radio Corporation of America. At the time of his death he was a director of the New York Telephone Company, the Bethlehem Steel Corporation, the American Locomotive Company, and the Radio Corporation of America. He received the degree of LL.D. from Princeton University and Rutgers College in 1896 and from Yale University in 1899. He was an able debater and a man recognized for legal capacity, political understanding and personal dignity.

GROSSMAN, The Rev. Dr. Rudolph. Rabbi, died at New York, N. Y., September 22. He was born at Vienna, July 24, 1867. Going to the United States as a child, he attended schools in Brooklyn and Chicago, graduating at the Hebrew Union College of Cincinnati in 1889 at the head of his class. He also graduated in law the same year at McMicken University, in the same city. He was called to New York as associate rabbi of Temple Beth El, where he remained for eight years until elected rabbi of Temple Rodeph Sholom, a charge he held at the time of his death. An eloquent preacher, he was grand chaplain of the Masonic Order of New York, president of the Jewish School Union of New York, and of the Board of Jewish Ministers, vice president of the New York Association of Reform Rabbis, and a member of the Commission of Jewish Religious Literature. He celebrated his silver jubilee in March, 1922, at which time a testimonial dinner was given in his honor. In 1894 he received the degree of D.D. from the Hebrew Union College.

GROVER, Oliver Dennett. American artist, died at Chicago, Ill., February 14. He was born at Earlville, Ill., in 1861, and after being a student at the University of Chicago studied painting at the Royal Academy of Munich, 1879–80, at the Duveneck School, Florence, 1880–84, and at Paris, 1884–86. His work is to be found in many American galleries. His painting, "Thy Will Be Done," received the first Yerkes prize at Chicago, 1892, and paintings exhibited at the St. Louis Exposition in 1904 received silver and bronze medals. He received the Kahn prize in Chicago in 1913 and the Fine Arts Building prize in 1906 and 1914. At the Panama-Pacific Exposition at San Francisco in 1915 he received a silver medal, and also a gold medal at the Art Institute in Chicago in 1918. He was made an associate of the National Academy in 1913. He was a former president of the Society of Western Artists and of the Chicago Society of Artists, as well as vice president of the Association of Arts and Industries.

GUADELOUPE, ga′dȧ-lo͞op′. A French insular possession in the Lesser Antilles in the West Indies, consisting of two islands separated by a narrow channel, the one on the west being Guadeloupe proper or Basse-Terre, and the one on the east Grand-Terre. Combined area, 532 square miles; total area, including five small dependent islands, 688 square miles; population in 1922, 229,839. Basse-Terre is the capital, with a population of 8318; chief town, Pointe-à-Pitre, with 27,679 inhabitants. In 1925–26 there were 103 public and private elementary schools, with 139 teachers and 15,635 pupils in the public schools and 33 teachers and 872 pupils in the private schools. For higher education there is one lycée with 360 pupils. The chief products for export are: Cacao, coffee, sugar, and rum. For local consumption, bananas, sweet potatoes, maize, tobacco, manioc, and various vegetables are produced. In 1925 the imports were valued at 132,566,419 francs and the exports at 154,871,706 francs. The revenue and expenditure for 1926 balanced at 29,636,746 francs; the public debt on Dec. 31, 1925, was 615,197 francs. There is communication with France by means of two steamship companies, and there is a wireless station at Destrellan. At the head of the government are a governor and an elected council and the colony sends to the French parliament at Paris one senator and two deputies.

GUAM, gwäm. An insular possession of the United States, situated at the southern end of the Marianne or Mariana Islands, of which it is the largest and most populous, in the Pacific Ocean at a distance of about 1500 miles from Manila and 5053 from San Francisco. Area, 210 square miles; population, exclusive of the military and naval establishments, 16,159 on June 30, 1926, of whom 15,615 were classed as natives. Capital, Agaña, with about 8500 inhabitants. In 1927, the school registration was 2946 pupils. Spanish and English are spoken in addition to the native Chamorro. The products of the island include cacao, coffee, copra, corn, rice, sugar, sweet potatoes and timber. The exports in 1926 amounted to $105,026 and the imports to $565,212. The island constitutes an American naval station, of which the governor, appointed by the President, is commander of the naval station and military governor of the island. He is virtually the entire government. Governor in 1927, Capt. L. S. Shapley, U.S.N. (appointed Nov. 21, 1925).

GUATEMALA, ga′te-mä̇lȧ. A republic of Central America lying between the Caribbean Sea and the Pacific Ocean, and south and southeast of Mexico. Capital, Guatemala City.

AREA AND POPULATION. The area is estimated at 48,290 square miles, but the limits have been uncertain on account of boundary disputes and the area has been figured as low as 42,353 square miles; population, according to the census of 1920, 2,004,900; estimated in 1926, 2,454,000. The population of the chief cities was: Guatemala City, 99,009; Totonicapan, 30,888; Coban, 30,321; Chiquimula, 25,191; Escuintla, 20,574; and Quezaltenango, 20,565.

EDUCATION. According to a message of the president delivered early in 1927 the republic showed a marked advance in the field of education during the preceding year. Primary schools which were in session numbered 2909 with 3212 teachers, and there was an average attendance of 80,997 students out of the 103,859 who were registered. The increase in private primary schools was also marked (146 over the number in 1925). University, secondary, normal, and special instruction was given in 40 schools in the country. A teacher-rating bureau and a bureau for indigent education and the eradication of illiteracy were created during the year. The following figures showing the progress of public education were taken from the report of the Secretary of Education for the year 1926, which was published in *El Guatemalteco* of May 16, 1927:

TOTAL ENROLLMENT AND ATTENDANCE IN ALL SCHOOLS

Schools	*Enrollment*	*Attendance*
Primary	103,859	80,997
Teachers' training	83	63
Normal	850	757
Secondary	745	616
Special	1,463	1,097
Colleges	588	588
Total	107,588	84,118

TOTAL ENROLLMENT AND ATTENDANCE IN PRIMARY SCHOOLS 1922–1926

Year	*Enrollment*	*Attendance*
1922	82,997	64,725
1923	89,484	80,566
1924	92,911	80,819
1925	105,314	77,838
1926	103,859	80,997

PRODUCTION. Agriculture is the chief occupation, and coffee is the staple crop. The estimates for the 1926 coffee crop placed it at 75,000,000 pounds. Other important crops are sugar, bananas, corn, beans, wheat, rice, tobacco, and potatoes. Mahogany and dye woods are exported to the United States. Silver, gold, iron, lead and copper mines exist, but are of little commercial value because of inadequate means of transport. In January, 1927, the Ministry of Agriculture published a report showing that there were 10,826 native landowners and 671 foreign land owners. The natives held 2,221,968 manzanas (one manzana equals 1.08 acres) and the foreigners 1,586,010 manzanas. The native holdings under coffee were 32,984 manzanas, foreign, 56,772; sugar cane, native, 12,126, foreign, 5068; bananas, native, 3396, foreign, 13,901; other crops, native, 219,597, foreign, 105,259; forests, native, 1,153,865, foreign, 1,405,010.

COMMERCE. The foreign trade of Guatemala for the year 1926 amounted to $55,579,676, of which $26,601,589 represented imports and $28,978,087 exports. The figures for 1925 were: Imports, $23,393,876; exports, $29,661,959; total, $53,055,835. There was, therefore, an increase in imports for the year 1926 as compared with 1925 of $3,207,713 and a decrease in exports of $683,872, or a net increase in the total foreign trade of $2,523,841. The balance of trade in favor of the republic was $2,376,498.

TEN-YEAR TABLE OF FOREIGN TRADE

Year	*Imports*	*Exports*	*Total*
1917	$8,991,573	$7,809,732	$16,801,305
1918	8,466,020	11,319,375	19,785,395
1919	14,215,865	22,419,134	36,634,999
1920	18,344,463	18,102,906	36,447,369
1921	13,616,438	12,140,826	25,757,264
1922	10,751,660	12,065,949	22,817,609
1923	13,763,497	14,743,323	28,506,820
1924	18,271,258	24,491,536	42,762,794
1925	23,393,876	29,661,959	53,055,835
1926	26,601,589	28,978,087	55,579,676

The percentage of foreign trade with the various countries was as follows:

	Percentage of imports
England	12.74
Germany	12.22
Mexico	9.29
United States	54.10
Various countries	11.65

	Percentage of exports
Germany	31.65
Holland	8.78
United States	53,87
Various countries	5.70

FINANCE. The total receipts of the government for the year 1926 were 11,555,352 quetzales, while the expenditures were 11,715,949 quetzales, leaving thus a deficit which, with the deduction of 25,090 quetzales, a sum covered by a special fund, amounts to 135,506 quetzales. Expenditures for the fiscal year beginning July 1, 1927, as approved by Congress and the President on May 16 and 20, 1927, respectively, are as follows:

Authorized expenditures for 1927–28	*Amount (quetzales)*
Department of the Interior	2,004,655
Treasury Department	2,800,004
War Department	1,436,599
Department of Promotion	1,495,809
Department of Public Education	1,682,425
Department of Agriculture	1,279,009
Department of Foreign Relations	332,601
Total	11,031,102

COMMUNICATIONS. The latest figures for shipping are those for 1923 when 1,081,425 tons entered and 1,079,760 cleared. The International Railway of Central America controls a mileage of approximately 440 miles in Guatemala, exclusive of 55 miles of siding.

GOVERNMENT. The executive power is vested in a president elected for six years and legislative power in a national assembly, consisting of representatives elected for four years, and a council of state, consisting of 13 members, part of whom are elected by the national assembly and part appointed by the president. President in 1927, Lazaro Chacón, elected in December, 1926.

HISTORY. The new Cabinet of President Chacón was composed as follows: Secretary of Foreign Relations, Dr. Luis Toledo Herrarte; Secretary of State, Lic. Alberto Paz y Paz; Secretary of the Treasury, Don R. Felipe Solares; Secretary of War, General Miguel Larrave; Secretary of Public Education, Lic. J. Antonio Villacorta; Secretary of Promotion, Lic. Adalberto Aguilar Fuentes; Secretary of Agriculture, Lic. Mariano López Pacheco.

Gen. Miguel Larrave and Gen. Mauro de León were elected, respectively, First and Second Designates to the Presidency for the year 1927–28 by the Legislative Assembly on Apr. 29, 1927.

The Ministers of Foreign Affairs of Guatemala, Honduras, and Salvador, acting as representatives of their respective governments, held a series of conferences at San Salvador at the invitation of Salvador and on May 25, 1927, signed a convention in which the three republics agreed not to act singly nor separately in the examination and solution of problems affecting the general interests of Central America, before a previous exchange of ideas, either by means of diplomatic notes or personal conferences among the Ministers of Foreign Affairs of the contracting states. For this purpose the convention considers as circumstances affecting the general interests of Central America, the recognition of a new government in accordance with the existing treaties; the declaration of war; the controversies which may arise with regard to questions already considered in the provisions of the international treaties in force; and the celebration, by one of the contracting nations, of any agreement, convention, or treaty with any non-Central American nation on matters which might affect Central American nationality. The convention required a regular annual meeting of the Ministers of Foreign Affairs of the three contracting Republics, the first meeting to be held in Guatemala. The Presidents of Salvador, Honduras, and Guatemala approved the convention on June 4.

For an account of the life of Señor Don Francisco Sánchez Latour, Guatemalan Minister to the United States since May, 1922, who died on November 8, consult his biography.

GUGGENHEIM FOUNDATION. See AËRONAUTICS.

GUNN, JAMES NEWTON. American industrial leader and manufacturer, died at New York, November 26. He was born in Springfield, Ohio, in 1868, and was educated at the Springfield High School and by private tutors. His first business activity was with the Library Bureau of Boston, where he developed and extended the card-index system. After serving in Europe for this company he returned to the United States and organized the engineering firm of Gunn, Richards and Company, which soon numbered among its clients many important business firms. At the beginning of the automobile industry, Mr. Gunn was called by the Studebaker Corporation to reorganize that company and develop its motor business, and this work was so satisfactorily accomplished that he was called to be vice president and director of the United States Rubber Company. He was also elected president of the United States Tire Company, serving from 1915 to 1923, when he retired. During the World War he was a member of the War Industries Board, representing the Rubber Association of America. He was president of the Lincoln Highway Association. He was one of the first lecturers on business at Harvard University, where he established its business school, and he served on the administrative board for several years. In 1923 Mr. Gunn retired from business on account of ill health, but soon became a consultant, resuming his engineering practice. He was an adviser for various corporations, being attached to the engineering staff of Lockwood, Greene and Company.

GYMNASTICS. The national Amateur Athletic Union gymnastic championships were held under the auspices of the Bohemian Gymnastic Sokol at New York City, the individual winners in the various events being: All-around, Alfred Jochim, Swiss Turn Verein, Union City, N. J.; long horse, Fred Berg, Norwegian T. S.; side horse, Alfred Jochim; parallel bars, M. Schuler, Union Hill T. V.; horizontal bar, H. Newhart, U. S. Naval Academy; tumbling, E. Klinker, Los Angeles A. C.; club swinging, Ray Dutcher, New York A. C.; rope climbing, M. Kraemer, Newark A. C.

The U. S. Naval Academy for the eighth consecutive year captured the intercollegiate championship, the victors in the several events being: All-around, Newhart, Navy; horizontal bar, Beling, Princeton; side horse, Ehrman, Pennsylvania; parallel bars, Sadler, Dartmouth; flying rings, Snively, Princeton; tumbling, Zitzewitz, Navy; rope climbing, Waterman, Navy.

GYPSUM. According to the U. S. Bureau of Mines the quantity of gypsum mined in the United States in 1926 was 5,635,441 short tons as compared with 5,678,302 tons in 1925, which was the record year. In 1927 it was estimated that the gypsum industry would show somewhat smaller production than in 1926, but on the whole it was a year of prosperity, notwithstanding keen competition and lower prices. New plant and equipment which were completed in 1926 at an outlay of not less than $5,000,000 added to the productive capacity of the industry in 1927. In Canada the production in 1926 was 883,728 short tons, valued at $2,770,813, as against 740,323 tons, valued at $2,389,891 in 1925, the 1926 production standing as the record for quantity as well as for value. The Canadian production came largely from Nova Scotia and New Brunswick, though gypsum was found in all of the provinces of Canada except Yukon Territory. During 1927 the gypsum wallboard industry continued to expand, largely at the expense of fibre boards, and in 1927 dry gypsum plaster as an insulator was placed on the market. In this novel use of gypsum the material is poured between studs and rafters and acts as a fire retardent. In 1926 the gypsum imported into the United States had a total value of $1,487,245 and was distributed as follows: Crude gypsum, 824,081 short tons, value, $1,276,131; ground or calcined gypsum, 7149 tons, value, $99,058; manufactured plaster of paris, value, $96,355; keenes cement, 578 tons, valued at $15,701. Of the imports of crude gypsum into the United States in 1926, 728,941 tons, valued at $1,044,810, came from Canada.

GYPSY MOTH. See Entomology, Economic.

HAANEL, Eugene. Canadian physicist and mineralogist, and superintendent and director of the Canadian Department of Mines, died at Ottawa, June 26. He was born at Breslau, Germany, where he was educated at the gymnasium and the university. He went to the United States in 1856. After serving through the Civil War as a lieutenant in the Federal Army, he held several teaching chairs until 1872, when he went to Victoria University, Cobourg, Canada, where he was engaged until 1889. He became then professor of physics in Syracuse University, New York, until he became superintendent of the Canadian Department of Mines in 1901. In 1908 he became director of the department. In 1901 he was appointed chairman of a commission to investigate electro-thermic processes in iron-ore smelting and steel making in Europe. In 1909 he was elected vice president of the American Institute of Chemical Engineers. He was made a charter fellow of the Royal Society of Canada. In 1912 he was special lecturer on economic geology in McGill University. He wrote: *Report on Experiments Made at Sault Ste. Marie in the Smelting of Canadian Iron Ores by Electro-Thermic Processes* (1907); and *Experience in the Use of Peat Fuel From the Government Plant at Alfred, Ont.* (1911).

HADLEY, Herbert Spencer. American lawyer and educator, chancellor of Washington University, St. Louis, Mo., died at St. Louis, December 1. He was born at Olathe, Kan., Feb. 20, 1872, and graduated at the University of Kansas in 1892, receiving the degree of LL.B., with first honors, from Northwestern University in 1894. In that year he entered upon the general practice of law in Kansas City, Mo., and four years later became first assistant city counselor, in charge of trial work. In 1901 he became prosecuting attorney of Jackson County, Missouri, but was defeated for reelection in 1902. In 1905 he was elected attorney general of Missouri, serving four years, during which time he prosecuted successfully cases against the Standard Oil Company, the railroads, the Harvester and other trusts, and other important interests, as well as the race-track gamblers of St. Louis. In 1909 he was elected, as a Republican, Governor of Missouri, winning by an overwhelming majority. He served for four years, after which he resumed the practice of law in Kansas City, being special counsel for railways west of Chicago in Federal valuation proceedings. In 1908, 1912 and 1916 he was delegate-at-large to the Republican National Convention. He was a member of a committee of Governors who invited Theodore Roosevelt to run for President in 1912, and was floor leader for the Roosevelt forces in the Republican National Convention of that year. In 1917 he turned his attention to teaching, becoming professor of law in the University of Colorado, and at the same time acting as counsel for the State Railroad Commission of Colorado, 1919–21. In 1923 he became chancellor of Washington University, St. Louis, a position he held at the time of his death. He was a member of the council on legal education of the American Bar Association, of the council of the American Law Institute, of the Commission on the Preparation of a Model Criminal Code, of the executive committee of the National Criminal Commission and of the council of conference of the Bar Association delegates, and chairman of the executive committee of the Missouri Association for Criminal Justice. He was the author of: *Railroad Rate Regulation* (1907); *The Standard Oil Trust; What the Railroads Owe the People; Rome and the World Today* (for which the Italian government conferred on him the decoration of the Order of Saints Maurice and Lazarus), and *Codifications of Justinian and Napoleon.*

HAIL INSURANCE. See Insurance.

HAITI, hä′tē. A West Indian republic comprising the western part of the island of Haiti or Santo Domingo, the other part comprising the Dominican Republic (q.v.). Capital, Port-au-Prince.

Area and Population. The area has been variously estimated at from 10,204 to 11,072 square miles; population, estimated, Jan. 1, 1924, 2,028,000, excluding 3000 foreign white residents and the military and naval forces of the United States stationed there in conformance with the treaty of 1915. The majority of the inhabitants are negroes, but there is a large number of mulattoes, who are descended from the former French settlers. The language is a dialect of French known as Creole French. The capital, Port-au-Prince, has a population of approximately 125,000; Cape Haïtien, about 20,000; Cayes, 15,000; Gonaives, 7500; and Port-des-Paix, 7500.

Education. Elementary education is free and has been compulsory since 1910. In 1925 there were 944 schools in session with 74,496 enrolled students. The rural schools have been much improved in recent years. Secondary education is provided by national lycées and by private schools. The University of Haiti was established in 1921.

PRODUCTION. The chief occupation is agriculture and the principal product is coffee. The Haitian government, realizing the dangers inherent in dependence on a single product such as the coffee crop, was encouraging investments of American capital in what was hoped would provide a more balanced diversification of industry. The two chief changes considered were the development of Haiti as a sisal-producing country and the proposed development of vegetable farming in the fertile Artibonite Valley. Experiments with sisal growing proved so successful that an agreement was reached between the government and certain American capitalists, providing for the lease of not over 20,000 acres of land for this purpose. The initial plantings would not exceed 1000 acres in 1927, but it was planned gradually to increase this acreage. Cacao, tobacco, and cotton are extensively cultivated, the last being exported in large quantities. Other products include sugar, rum and other spirits, logwood and other valuable timber. Mineral resources are considerable although undeveloped. They include copper, coal, and iron, for the working of which some concessions have been granted; also gold, silver, antimony, tin, sulphur, kaolin, limestone, porphyry, nickel, and gypsum. The manufactures are practically negligible.

COMMERCE. The following table shows the quantity and value of Haiti's principal exports during the fiscal years 1924–25 and 1925–26:

EXPORTS OF HAITI'S MAJOR PRODUCTS

Commodity	*1924–25*		*1925–26*	
	Kilos	*Gourdes*	*Kilos*	*Gourdes*
Coffee	30,767,100	76,999,495	35,683,690	81,621,600
Cotton	3,605,749	9,961,320	4,994,526	9,416,585
Logwood	32,303,085	2,672,580	21,587,180	2,323,465
Sugar	5,359,360	1,882,660	5,973,839	1,605,500
Cotton seeds	2,468,946	498,615	5,772,803	724,610
Lignum-vitæ	2,460,663	140,830	1,601,543	200,890
Cacao	1,533,772	921,040	2,190,598	1,884,870
Total	78,498,625	93,076,540	77,804,179	97,777,470

In spite of the somewhat discouraging diminution of both exports and imports for 1926 as compared with the previous year, the change in the balance of trade was an important favorable factor which was not to be overlooked. In 1925 when exports were valued at $19,700,659 and imports at $20,887,800, there was an unfavorable balance of trade of over $1,187,000, whereas by 1926 with exports of $18,676,368 and imports of $16,414,851, the tide of trade had turned and Haiti showed a favorable balance of nearly $2,262,000. The decline in exports was solely the result of lower prices as the volume of export trade showed an actual increase from 1925 to 1926. Imports were less in the latter year denoting a decline in purchasing power but at the same time a far more favorable economic position for the country, as evidenced by a turn in the trade balance of nearly $3,500,000.

FINANCE. Total receipts of the Haitian government during 1925–26 were 45,364,648 gourdes, a figure theretofore unapproached. An advance of 4,876,981 gourdes or 12.05 per cent over the previous fiscal year was shown, thus demonstrating the prosperity which existed in Haiti, as the year 1924–25 was also unusually favorable. Customs receipts amounted to 40,594,832 gourdes, a sum which was in itself in excess of total revenues of the previous year. Internal revenue receipts also expanded and miscellaneous receipts were only slightly inferior to the amount collected in 1924–25. Governmental expenditures from revenue amounted to 40,930,725 gourdes. Receipts therefore exceeded expenditures by 4,443,923 gourdes or 10.83 per cent.

COMMUNICATIONS. Railroads are not the feature in the Republic of Haiti that they are in many countries, for the region is largely wild and mountainous and the seasonal torrents of mountain streams are a constant menace to all road building. The two railroads, the National and the P. C. S. (Compagnie des Chemins de Fer de la Plaine de Cul de Sac) are both American owned. The operating revenues during 1926 on the National amounted to $114,805, and operating expenses to $107,634. The rolling stock in operation at the end of 1926 comprised 12 locomotives, 36 freight cars, 30 cane cars, and 18 passenger cars. Operating revenues of the P. C. S. amounted to $91,267 and operating expenses to $142,374. Other revenues included $41,280 yearly interest guaranty of the Haitian government, although this was not paid for 1926. Other expenses aggregated $235,178. At the close of 1926 there were in operation seven locomotives, 22 freight cars, 13 passenger cars, and five motor cars. In addition, the Haitian American Sugar Co., principal user of the road, had 4 locomotives and 300 cane cars.

GOVERNMENT. Executive power is vested in a president elected for four years, who acts through a ministry of five. The constitution as adopted by the people on June 12, 1918, provides for a National Assembly to consist of a Senate and House of Representatives. This body had never been elected. Instead the legislative functions were carried on by the Council of State, consisting of 21 members apportioned among the different departments, who were supposed to act until the president fixed a date for the election of the Assembly. As he had never done so this body still functioned at the end of 1927. The President in 1927 was Louis Borno, who was elected Apr. 10, 1922, and reelected Apr. 10, 1926.

On November 14, the U. S. State Department announced that Arthur C. Millspaugh, former financial adviser to the Persian government, had been nominated to succeed W. W. Cumberland as financial adviser to the Government of Haiti. His nomination was approved by M. Borno.

HISTORY. In the spring the American press was considerably stirred up pro and con over the refusal of the Government of Haiti to permit United States Senator King to enter the country. The island government contended that Senator King had "publicly uttered in the United States a false and offensive declaration against the President of Haiti and his coadjutors" and had "made himself in the United States the agent of the worst element of disorder in Haitian politics." The government stated further that it was afraid his visit would provoke political agitation and insecurity, which might be disastrous to the peace and quietude of the republic. Needless to say Senator King had been outspoken in his condemnation of the American methods in Haiti and had bitterly attacked the Borno government on the grounds that it did not represent the real wishes of the people and was kept in power to serve American capital invested there. The intervention of the United States Department of State failed to secure the lifting of the ban. Senator King in commenting upon this phase of the affair said: "President Borno has no power but what he gets from the State Department and Gen. John H. Russell, the High Commissioner. He is merely a puppet. If the State Department and General Russell had demanded that I be admitted, President Borno would have raised the ban at once. By their failure to do this, the State Department and General Russell acquiesced in my exclusion."

HALL, William H. American educator and missionary, died at Beirut, Turkey, January 8. He was born at Biddeford, Me., in 1872, and after graduating at Union College in 1896 joined the staff of the American University at Beirut. Returning to the United States, he studied at the McCormick Theological Seminary, Chicago, until 1902, when he received the degree of M.A. and a permanent appointment to the faculty of the university at Beirut as principal of its preparatory school. He was an authority on the early history of Syria, making special studies of the old castles built there during the Crusades. He wrote: *Reconstruction in Turkey;* and *The Near East, Crossroads of the World.*

HALL, William Preble. American soldier, died at Washington, D. C., December 14. He was born in Missouri, June 11, 1848, and after graduating at the U. S. Military Academy in 1868 served in the infantry and cavalry until Nov. 6, 1893, when he was commissioned major in the adjutant-general's department in which he spent the remainder of his service, being adjutant-general from Feb. 17, 1912, until his retirement on June 11, 1912. General Hall was a veteran of numerous Indian campaigns. He received the Congressional Medal of Honor when a first lieutenant in the Fifth United States Cavalry for meritorious service at White River, Colorado, Oct. 20, 1879, when he exposed himself to fire to enable three men in a reconnoitering party of which he was in charge, and which was going to the rescue of a fellow officer, to locate the position of an attacking party of 35 Indians. From 1902 he was on duty in Washington until his retirement.

HAMERSCHLAG, Arthur Arton. American educator and engineer, died at New York, July 20. He was born in Nebraska, Nov. 22, 1867, and was educated in the public schools of Omaha and New York and by private tutors. He engaged in engineering field work in the United States, Cuba and Mexico, 1888–92, and in the latter year became superintendent of St. George's evening trade school in New York City, serving until 1904. In 1903 he was elected president of the Carnegie Institute of Technology, Pittsburgh, where he was active until 1922. His work in technical education was recognized by the award of degrees of Sc.D. in engineering from both Lehigh University and Western University of Pennsylvania in 1907, and that of LL.D. from Trinity College, Connecticut, in 1912, and Allegheny College, Pennsylvania, in 1915. He was consulting engineer for various trade schools in New York and elsewhere while he was engaged at St. George's School, and he also served as consulting electrical and mechanical engineer for various corporations and industries. At Pittsburgh he was a member of the Smoke and Dust Abatement League, of the Schenley Memorial Commission, and of the Pittsburgh Chamber of Commerce. In 1915 he was a member of the international jury of award of the department of education of the Panama-Pacific International Exposition. He served as director of industrial research in the office of Maj.-Gen. George W. Goethals, and in 1923 became president of the Research Corporation of New York City.

HAMILTON, Lord George Francis. British statesman, died at London, September 22. He was born at Brighton, Dec. 17, 1845, the third son of the Duke of Abercorn, and was educated at Harrow, later serving in the Rifle Brigade and in the Coldstream Guards. At the general election of 1868 he was sent to Parliament for Middlesex as a Conservative, displacing Henry Labouchère. When the county was divided in 1885 he sat for the Ealing division until 1906. He was appointed to the India Office, where he represented India in the House of Commons. From that time on he held a prominent position whenever a Conservative ministry was in power, and his advancement was only hindered by his differences with his party on the policy of tariff reform and the Liberal triumph of 1906. From July, 1885, to August, 1892, Lord George Hamilton was First Lord of the Admiralty, except for a brief interval during the Gladstone Ministry. During this period the British fleet was entirely reconstructed and plans were made for naval expansion. In the preparation and passage of the important naval defense act of 1889 Lord George Hamilton was extremely active. From 1892 to 1894 he was active in the Opposition, especially in connection with naval affairs, adhering to the principle of the naval defense act that the British fleet should be equal to the combined fleets of any two other nations. Opposition to this action, which was advocated by the sea lords, led to Mr. Gladstone's final retirement from public life. With the return of the Unionists to power in 1895, Lord George Hamilton returned to the India Office as secretary of state, serving here for over eight years. On the fiscal issue, in September, 1903, Lord George Hamilton and Lord Ritchie resigned from the cabinet, being free traders and disagreeing with the policies of Mr. Chamberlain.

During the War Lord George was chairman of the Mesopotamia Commission of 1917. He was captain of Deal Castle, 1899–1923, and was provincial grand master of Middlesex in the Masonic order. Lord Hamilton received honorary degrees from Glasgow, and was made a Grand Companion of the Star of India in 1903. He wrote two series of *Parliamentary Reminiscences and Reflections,* one covering 1868–1885, published in 1916, and the other covering 1886–1906, published in 1922.

HAMILTON COLLEGE. A non-sectarian institution of higher education at Clinton, N. Y.; founded in 1812. A total of 424 students was registered for the 1927 autumn session, divided as follows: seniors, 81; juniors, 76; sophomores, 147; freshmen, 120. There were 43 members on the faculty for the year 1927–28. The productive funds of the college were approximately $3,597,700, and the income for the year 1926–27 was $849,346. The library contained 119,858 volumes and 29,000 pamphlets. President, Frederick C. Ferry, Ph.D., Sc.D., LL.D.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE. An institution founded in 1868 at Hampton, Va., for the education of negroes and Indians. The enrollment for the year 1927–28, exclusive of training and summer schools, was 885, of whom 856 were boarding students. The faculty numbered 124. The enrollment for the two summer sessions of 1927 was 1222. The productive funds of the Institute amounted on June 30, 1927, to $8,251,073, and the income was $528,057. There were 62,738 volumes in the library. Principal, James Edgar Gregg, D.D.

HANDBALL. George Nelson of Baltimore succeeded Maynard Laswell of Los Angeles as American singles handball champion in 1927 through his defeat of Frank Burke of San Francisco in the final round by the score of 21–9, 21–4. The national doubles title went to William Kammon and Stanley Dwormann of Detroit. Murray Vernon of the Crescent A. C., Brooklyn, won the national singles one-wall championship, the doubles in this tourney being captured by Solomon Goodman and Jack Seaman of the Trinity Club of Brooklyn, N. Y.

HARBORS. See Ports and Harbors.

HARDEN, Maximilian. German journalist and publicist, died at Montaña Vermala, Switzerland, October 30. He was born in Berlin, Oct. 20, 1861, the son of a Jewish merchant. His real name was Isador Witkowski, a name which later he abandoned on account of a family quarrel. He received a primary school education, and at the age of 12 ran away from home. He accepted the Christian faith when 16. Until he was 19 he traveled about North Germany with a theatrical troupe, gaining education and a thorough knowledge of the German people. In 1883 he began his newspaper writing by contributions on literature and drama to the *Frankfurter Zeitung*, later writing also for the *Gegenwart* and the *Nation*. A series of articles published in the *Gegenwart* over the signature "Apostata" attracted wide attention, and in 1892 were collected and reprinted. In 1892 he established the weekly magazine *Zukunft*, and in 1896 he also founded *Theater und Litteratur*. In 1889 he was joint founder, with Otto Brahm, of the Free Theatre in Berlin. Harden was a vigorous and fearless critic throughout his publishing career, and at the time of the dismissal of Bismarck he criticized Chancellor von Caprivi, Bismarck's successor, so severely that he became an object of the Kaiser's permanent hostility. In 1900 he was imprisoned for six months by the Kaiser. He also exposed the Eulenburg scandals at the imperial court, and at another time was imprisoned for two weeks for comments upon the insane King of Bavaria. In art and literature he was no less vigorous a critic, and his *Kampfgenosse Sudermann* (1903) was a bitterly hostile criticism of that noted dramatist. From 1907, Harden and his writings were largely in the public eye, and during the World War he commented on political conditions in a column, "Through German Eyes," which appeared in *The Times*, London. He criticized vigorously both German politics and the German conduct of the War, and after the revolution he was no less severe towards the revolutionary party. It was said that Harden voiced the only protest in Germany against the sinking of the *Lusitania*. After the assassination of the foreign minister, Dr. Walter Rathenau, in 1922, an attempt was made to kill Harden by two men, and he was seriously injured. He published in 1922 *War in Peace*, which won the Strindberg Prize, and in 1926 *My Contemporaries*, which dealt with prominent men in political life. His last work, *From Versailles to Versailles*, was completed just before his death.

HARLAN, James S. American lawyer and former chairman of the Interstate Commerce Commission, died at Essex, N. Y., September 20. He was born at Evansville, Ind., Nov. 24, 1867, and was a son of the late John M. Harlan, associate justice of the United States Supreme Court. He graduated at Princeton University in 1883, and then studied law at Chicago in the office of the late Melville W. Fuller, who became Chief Justice of the United States. After admission to the bar in 1888, Mr. Harlan practiced in Chicago until his appointment as attorney-general of Porto Rico, in 1901. In 1903 he left that office, and in 1906 became a member of the Interstate Commerce Commission by appointment of President Roosevelt, and served as its chairman from 1914 to 1918.

HARMON, Judson. American lawyer and public official, died at Cincinnati, Ohio, February 22. He was born at Newton, Ohio, Feb. 3, 1846. He graduated at Denison University, 1866, and at the Cincinnati Law School, 1869. He was mayor of Wyoming, Ohio, 1875–76; judge of the Court of Common Pleas, 1876–77; judge of the Superior Court of Cincinnati, 1878–87. In the latter year he returned to private practice, giving it up in 1895 to become Attorney-General of the United States in the cabinet of President Cleveland. He held this office until Mar. 5, 1897. During his term the question of the "trusts" was prominently before the public; it was the policy of Attorney-General Harmon to make a personal matter of monopoly, and to prosecute criminally those held to be guilty. Denison University conferred on him the degree of LL.D. in 1891. In 1897 he became president of the Ohio Bar Association, and in the same year professor of agency in the law department of the University of Cincinnati. He was receiver of the Cincinnati, Hamilton & Dayton, Père Marquette and Toledo Terminal Rys., 1905–09. For two terms, 1909–11 and 1911–13, Mr. Harmon was Governor of Ohio. In early life he was a Republican, but he left the party in 1872 to support Horace Greeley for President, and he was an active and influential member of the Democratic party. He was mentioned several times as a possible candidate for the Presidency, and at the Baltimore convention in 1912 was a prominent rival of Woodrow Wilson for the nomination.

HARRINGTON, Sir John Lane. British diplomat and soldier, died at Hove, England, September 8. He was born Jan. 16, 1865. After graduation at Stonyhurst, he entered the British Army in 1884 as a private. Five years later, having reached the rank of second lieutenant, he was transferred to the Indian staff corps. In 1895 he volunteered for the vice consulship at Zaila, a little known port of Abyssinia, and began the career which won distinction for him, as the promotor of friendly relations between Great Britain and Abyssinia. He became very popular with the government and the people of Abyssinia. He was in turn British consul, minister plenipotentiary, agent and consul general. His work was recognized as invaluable by the home government, and he received high honors, including a Companionship of the Bath, a Knight Commandership in the Victorian Order, and a Knight Commandership of St. Michael and St. George. From Abyssinia he received the First Class of the Order of the Star of Ethiopia. In 1909 he retired from the diplomatic service, and subsequently contested three parliamentary elections, without success. He served in the British Expeditionary Force in the War, commanding a battalion of the Essex Regiment, and was mentioned in dispatches.

HARRISON, ELIZABETH. American educator, died at San Antonio, Tex., October 31. She was born at Athens, Ky., Sept. 1, 1849. She graduated at the Froebel Kindergarten Training School, Chicago, 1880; the St. Louis Kindergarten Training School, 1882; and the Kraus-Boelte Kindergarten School, New York, 1893, and also studied kindergarten methods in Europe, becoming one of the pioneers in establishing kindergartens in the United States. She was president of the National Kindergarten College from 1890 to 1920, and was president emeritus of the institution until her death. She was a member of many societies concerned with child-training. Her books include: *Study of Child Nature* (1885); *Misunderstood Children* (1910); *Montessori and the Kindergarten* (1914); *The Unseen Side of Child Life* (1922), besides several volumes of stories.

HARTY, JEREMIAH J. American clergyman, Roman Catholic bishop of the diocese of Omaha, Nebraska, died at Los Angeles, Cal., October 29. He was born at St. Louis, Mo., Nov. 7, 1863, and was educated at St. Louis University and St. Vincent's College, completing his divinity course at the latter institution. He was ordained to the priesthood Apr. 28, 1878, and became assistant rector of St. Lawrence O'Toole's Church, St. Louis, later going to St. Bridget's Church, in the same city, where he remained until 1888. In the latter year he organized the parish of St. Leo, in St. Louis, and continued as its rector until he was appointed Archbishop of Manila, Philippine Islands, June 6, 1903. He remained there until he was transferred, on May 16, 1916, to the diocese of Omaha.

HARVARD UNIVERSITY. A non-sectarian institution of higher education at Cambridge, Mass.; founded in 1636. The number of students enrolled for the year 1927–28 was 8030, distributed as follows: college, 3252, divided into: seniors, 613; juniors, 763; sophomores, 811; freshmen, 967; out of course, 98; graduate school of arts and sciences, 893; engineering, 280; theological, 86; law, 1535; medical, 522; dental, 133; school of public health, 16; graduate school of business administration, 745; school of architecture, 77; landscape architecture, 60; graduate school of education, 360; special students, 49; Bussey Institution, 22. For the summer session of 1927 the registration was 2844. The officers of instruction for 1926–27 numbered 1249, of whom 205 were professors, 44 associate professors, and 120 assistant professors. The total productive funds of the University in June, 1927, were $82,036,998.09, and the total income for the year, including gifts for immediate expenditure, was $10,754,224.57. The operating expenses for the year ended June 30, 1927, were $9,365,269.33, which was budgeted from the following sources of income: From funds and gifts, $4,319,806.13; from tuition, $2,280,536.25; from dormitory rentals, $624,279.24; from dining halls and the union, $562,340.85; from athletic sports, $778,071.03; from other sources, $800,235.83. The number of books and pamphlets in the library was 2,622,400, including 119,596 additions made during the year. The new Fogg Art Museum was completed in June and the School of Business Administration building, the gift of George F. Baker, was dedicated in the same month. The John W. Weeks footbridge across the Charles River, given by his former partners, was also dedicated in the spring. New chemical laboratories were under construction during the year, and important enlargements to the Law School were made possible through funds recently acquired.

During the first half-year, 1927, the following were visiting professors: Professor William K. Boyd, history, from Duke University; Professor Walter E. Clark, Indic philology, from the University of Chicago; Professor Leon W. Collet, geology, from the University of Geneva; Associate Professor Harold N. Hillebrand, English, from the University of Illinois; Professor Alfred F. Pribram, history, from the University of Vienna; Professor Josef Schumpeter, economics, from Bonn; Professor Adolph Goldschmidt, fine arts and history of German culture, from the University of Berlin.

A series of lectures, under the Charles Eliot Norton Chair of Poetry, were given during the year 1927–28 by Professor Eric R. D. Maclagan, Director and Secretary of the Victoria and Albert Museum, England. Professor Andre Koszul of the University of Strasbourg, France, was exchange professor from that country during the second term of 1927–28, while Professor James H. Woods of Harvard was exchange professor at the University of Paris during the same period. The Western exchange professors for 1927–28 were: first half-year Assistant Professor Frederick Merk, history (Carleton, Grinnell and Pomona); and second half-year, Assistant Professor Ralph Beatley, education (Knox, Beloit, and Colorado State College). President, Abbott Lawrence Lowell, Ph.D., LL.D.

HASLAM, SIR ALFRED SEALE. British inventor and engineer, died January 13. He was born Oct. 27, 1844, and was trained as an engineer at the Midland Ry. works, Derby, and later under Lord Armstrong's company. In 1878 he founded the Haslam Engineering Works, at Derby. He was the first to invent, manufacture and fit up patent refrigeration plants in the British colonies, and to place the machinery and the cold chambers on board ship and on shore, thus establishing the important business of conveying perishable food from the colonies to the mother country. His services were recognized by a knighthood in 1891. He was mayor of Derby for one year, mayor of Newcastle-under-Lyme for four years, and member of Parliament from 1900 to 1906. He presented to England statues of Queen Victoria erected in London, Newcastle-under-Lyme and Derby.

HAVARD, VALERY. American military surgeon, died at sea while on his way to Italy, November 6. He was born at Compiègne, France, Feb. 18, 1846. After graduating at the Institute of Beauvais, France, 1865, he went to America and entered Manhattan College, New York City, graduating at the latter institution in 1869. He received his degree in medicine from the University Medical College, New York, in the same year. He entered the United States Army as an assistant surgeon in 1874. He was chief surgeon of the fifth corps, serving in Cuba, in 1898, and was also chief surgeon of the Department of Cuba, 1900–01. He was military attaché from the United States with the Russian army in Manchuria in the Russo-Japanese War, 1904–05; chief surgeon of the Department of the East, 1903–06, and president of the Army Medical School and in charge of the library and museum division, United States Army, from 1906 until his retirement in 1910. In 1917 he was recalled from retirement to become the reorganizer of the Cuban army and navy medical services, being relieved in 1923. He wrote a *Manual of Military Hygiene.*

HAVERFORD COLLEGE. An institution of higher education under the control of the Society of Friends, at Haverford, Pa.; founded in 1833. Registration for the autumn term of 1927 totaled 273 students, distributed as follows: graduates, 9; exchange student, 1; seniors, 52; juniors, 62; sophomores, 72; freshmen, 77. There were 32 members on the faculty. The productive funds of the institution amounted to $4,069,030.-31, and the total income for 1926–27 was $198,-613.75. The library contained 105,000 volumes. President, William Wistar Comfort, Ph.D., Litt.D., LL.D.

HAWAII. A territory of the United States, consisting of a group of islands in the north central Pacific Ocean; formally annexed, Aug. 12, 1898. The nine inhabited islands with their respective areas in square miles are as follows: Hawaii, 4015; Maui, 728; Oahu, 599; Kauai, 547; Molokai, 261; Lanai, 139; Niihau, 97; Kahoolawe, 69; Midway, 2.7. Capital, Honolulu, on the island of Oahu. The population according to the census of 1920 was 255,912 as compared with 191,909 in 1910. The population of the territory was estimated by the board of health to be 333,420 on June 30, 1927; of this number 217,618 were American citizens. The total number of steerage arrivals during the year ending June 30, 1927, was 10,961 as against 7925 for the prior year, divided as follows: Chinese, 762; Japanese, 2512; Filipinos, 7696; Koreans, 4; Porto Ricans, 15; Portuguese, 105; Russians, 3; all others, 464. The departures aggregated 12,357 as against 11,603 for the previous year. The general death rate was the lowest in the history of the territory, the death rate for the year being 11.87 per 1000 as against 12.44 for the previous year. The number of deaths of infants under one year of age showed a decrease of 114 for the year, there being 1180 deaths, or a rate of 95.97 per 1000 births. The races showing the highest and lowest infant mortality were, respectively, the Hawaiian 327.19 and Korean, 42.91. There were 12,296 births reported during the year, a decrease of 157 from 1926. The birth rate was 37.16 per 1000 population and percentage of increase of births over deaths of 212.95.

EDUCATION. Education is compulsory from the age of six to fourteen, the maximum having been lowered in 1923. During the year there were maintained 187 public schools, with 2145 teachers and 62,208 pupils, as against 182 public schools, 1977 teachers and 58,860 pupils in 1926. There were 63 private schools, with 478 teachers and 10,316 pupils, making a grand total for the year of 250 schools, with 2623 teachers and 72,524 pupils.

PRODUCTION AND COMMERCE. Cane-sugar production has been the basis of Hawaii's prosperity since 1876, when the reciprocity treaty was negotiated between the Hawaiian monarchy and the United States. Although the statistics on the 1927 crop were not available, estimates placed it above the 1926 record crop of 787,246 tons. The second most important source of wealth is the pineapple industry. The accompanying tables from the report of the Governor of Hawaii for the fiscal year ended June 30, 1927, give the main statistics concerning commerce.

IMPORTS AND EXPORTS, FOREIGN AND DOMESTIC, 1925 AND 1926

Countries	*Imports*		*Exports*	
	1925	*1926*	*1925*	*1926*
Australia	$386,754	$366,557	$8,399	$18,169
Other British Oceania	1,781	525	31,253	9,669
British India	1,542,825	1,270,045	1,320	1,248
Canada	22,720	11,513	338,994	413,808
Chile	2,460,981	2,848,006	.....	......
France	6,896	4,915	1,195	428
Germany	240,437	299,101	50	3,745
Hongkong	728,216	540,502	19,584	16,559
United Kingdom	154,673	127,381	488,094	343,919
Japan	3,521,299	2,977,438	112,519	112,591
New Zealand	696,450	529,867	39,406	41,132
Philippine Islands	365,463	370,827	681,422	757,221
Other foreign	759,254	907,888	122,546	165,595
Total foreign	10,887,749	10,254,565	1,844,782	1,884,079
United States	72,952,949	76,262,624	102,780,509	98,260,941
Grand total	83,840,698	86,517,189	104,625,291	100,145,020

DOMESTIC EXPORTS BY ARTICLES, FISCAL YEARS 1925 AND 1926

	United States, 1926		*Foreign, 1926*		*Total, 1926*		*Total, 1925*	
Article	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*
Sugar	1,494,260,515	$59,043,367	500	$28	1,494,261,015	$59,043,395	1,510,317,672	$68,300,529
Coffee	1,717,599	471,560	1,434,800	404,621	3,152,399	876,181	5,102,928	1,880,638
Fruits and nuts[a]	....	34,232,506	....	861,271	....	35,093,777	....	34,683,425
Rice	75,010	5,533	....	......	75,010	5,533	119,896	8,285
Hides	1,421,562	138,748	....	......	1,421,562	138,748	1,462,550	162,990
Other[b]	....	4,340,488	....	603,670	....	4,944,158	....	5,043,096
Total	....	98,232,197	....	1,869,590	....	100,101,787	....	104,588,968

[a] Mostly pineapples.

[b] Mostly sugar-mill machinery.

HAWAIIAN IMPORTS AND EXPORTS DURING 10 YEARS

Years [a]	*Imports* *United States*	*Imports* *Foreign countries*	*Imports* *Total*	*Exports* *United States*	*Exports* *Foreign countries*	*Exports* *Total*	*Total imports and exports*
1917	$39,875,390	$6,482,951	$46,358,341	$74,480,119	$635,864	$75,115,983	$121,474,824
1918	45,004,156	6,797,048	51,801,204	79,395,388	1,151,218	80,546,606	132,347,810
1919	42,421,474	8,322,319	50,743,793	82,409,114	5,840,907	88,250,021	138,993,814
1920	53,669,174	9,614,473	63,283,647	101,194,733	3,585,071	104,779,804	168,063,451
1921	77,739,881	12,561,879	90,301,260	177,173,234	3,547,008	180,720,242	271,021,502
1922	56,223,067	7,819,673	64,042,740	71,615,805	1,132,438	72,748,243	136,790,983
1923	56,837,991	8,038,823	64,876,814	81,495,984	1,272,333	82,768,317	147,645,131
1924	69,678,434	8,986,878	78,665,312	109,138,065	1,588,411	110,726,476	189,391,788
1925	72,952,949	10,887,749	83,840,698	102,780,509	1,844,782	104,625,291	188,465,989
1926	76,262,624	10,254,565	86,517,189	98,260,941	1,884,079	100,145,020	186,662,209
Total	590,664,640	89,766,358	680,430,998	977,943,902	22,482,111	1,000,446,003	1,680,857,001

[a] 1917 to 1924 inclusive, fiscal years ending Mar. 31. 1925 and 1926 calendar years.

Movements of coin for the calendar year 1926 were as follows: From United States mainland, $77,500; to United States mainland, $71,000.

FINANCE. The income of the various counties aggregated $12,618,826, as against $8,875,744 in 1926, thus showing an increase of $3,743,082. The gross assessment of property, real and personal, aggregated $414,064,603 as compared with $392,782,143 in 1926. The total income of the territory was $10,454,628; and the total current expenses and fixed charges amounted to $9,202,989, leaving an excess of income over operating expenses of $1,251,639. The total capital outlays amounted to $3,090,174; the excess of income over all expenditures other than capital funds, $146,028. The total bonded indebtedness on June 30, 1927, was $24,210,000 as compared with $22,070,000 on June 30, 1926. Bank deposits totaled $75,024,292 as compared with $67,851,393 in 1926.

COMMUNICATIONS. There are steam railways on all islands operating on regular schedules and most of them carrying passengers. In addition plantations have their private railway equipment for transporting cane and laborers. The total mileage in 1927 was 371.55, mostly narrow gauge. There were 59 locomotives, 99 passenger cars, and 1834 freight cars; 2,065,108 tons of freight were carried and 1,100,151 passengers. Regular steamship communication is maintained with the mainland by the Matson Steamship Company, operating between San Francisco and Hawaii; by the Alaska Steamship Company, connecting with Seattle; by the Isthmian Steamship Lines, with headquarters in New York; by the Los Angeles Steamship Company, operating between Los Angeles and Hawaii; and other companies; during 1926–27 1099 vessels of 8,228,331 tons entered and cleared the harbors of the territory.

GOVERNMENT. The territorial elections are held regularly in November of each even year, to elect the delegate to Congress for two years, one-half of the Hawaiian Senate for four years, and all the members of the Hawaiian House of Representatives for two years. The sessions of the legislature are held biennially in odd-numbered years. Governor in 1927, Wallace R. Farrington.

HAY. A summary of the hay production of the United States in 1927 by the Department of Agriculture pointed out that the tame hay crop of the year was the first to exceed 100,000,000 tons and the largest ever produced. The acreage of clover hay increased from 6,998,000 acres in 1926 to 8,277,000 acres in 1927, and the yield from 9,737,000 tons to 14,497,000 tons. The acreage of mixed clover and timothy cut for hay was 15,762,000 acres in 1926 and 16,774,000 acres in 1927, while the production was 20,520,000 and 27,280,000 for the two years respectively. Cowpea, soy bean and peanut vine hay was cut on a greatly increased area in the Southern States where these crops are the chief source of hay. The acreage in 1926 was 3,370,000 acres and in 1927, 4,449,000 acres, and the production 3,669,000 and 4,868,000 tons respectively. Millet, sudan and red top were also larger in acreage and yield in 1927 than in 1926. The area of unmixed timothy cut for hay and grains cut green was smaller in 1927 than the year before when weather conditions were not so favorable. The crop of wild hay in 1927, including marsh, salt and prairie hay, was nearly double that of 1926 and the largest since 1923.

The total hay crop of the year, according to estimates published by the Department of Agriculture Dec. 19, 1927, was 123,512,000 tons or at the rate of 1.63 tons per acre and compared respectively with 96,065,000 tons and 1.34 tons for 1926. The average farm price Dec. 1, 1927, was $10.69, or practically $3.00 below the corresponding price of the preceding year. On this basis the total value of the 1927 crop was $1,320,524,000 or only $6,046,000 above the value of the crop of 1926.

Of the total production of 1927, 106,219,000 tons was tame hay, and 17,293,000 tons wild hay, and the areas devoted to these crops were 61,196,000 acres and 14,787,000 acres, respectively.

The average yield of tame hay was 1.74 tons and of wild hay 1.17 tons per acre. All states reported tame and wild hay production in 1927. The yields of tame hay in the leading producing states were as follows: New York 7,311,000 tons, Wisconsin 6,989,000 tons, Iowa 5,357,000 tons, Missouri 5,185,000 tons, California 5,156,000 tons, Illinois 5,092,000 tons, and Pennsylvania 5,063,000 tons. The wild hay production in 1927 in the leading producing states was as follows: South Dakota 3,311,000 tons, Nebraska 3,056,000 tons, Minnesota 2,826,000 tons, North Dakota 1,700,000 tons, and Kansas 1,231,000 tons.

These states produced about 70 per cent of the total crop of wild hay. The yield of tame hay reported above includes 31,781,000 tons of alfalfa hay. See ALFALFA.

The United States official hay standards were amended by the Secretary of Agriculture as effective July 1, 1927. The class and grade requirements of the different groups or types of hay are given in the *Handbook of Official Hay Standards*. United States Department of Agriculture (Washington, 1927). Training schools were held in different parts of the country for training hay inspectors efficient in the use of these standards.

HAYTI. See Haiti.

HEART DISEASE. Within the past few years heart disease has assumed a vast importance as a social affliction with mass efforts to secure the maximum amount of salvage from its victims. Dr. L. A. Conner in the *Journal of the American Medical Association* for Aug. 13, 1927, goes most exhaustively into this subject, the title of his paper being "Rehabilitation of Cardiac Patients by Organized Effort." The first aspect of this subject is the heart clinic, of which there are 178 in the United States and Canada and 42 in New York City alone, which come up to a certain standard, 16 of these being devoted exclusively to children. Since something like 35 per cent of these cardiac cripples owe their heart ailment to rheumatism there is a certain amount of overlapping in the two problems of heart disease and chronic rheumatism, both of which during the year were receiving organized effort. The number of cardiac patients dealt with at these clinics in the metropolitan district amounted in 1926 to about 8500. The amount of mass benefit obtained by the concerted effort could not thus be estimated at so early a stage, but must be considerable. Special school clinics for cardiac children had been carried out for the past seven years. Fortunately less than 1 per cent of all school children have crippled hearts and these were segregated for combined school and medical care and nursing. Several hundred children were segregated for this combined care and to make this operative the following bodies have made a concerted effort: The New York Heart Association; various hospital and dispensary services; the Board of Education; the Department of Health; the Cardiac Committee of the Public Education Association and various welfare societies. The results were so encouraging that all of the cardiac school children in the city were to be made the beneficiaries of the movement.

Next to heart clinics come convalescent homes and sanatoria. Formerly the homes were averse to taking cardiacs and 11 were established purely to care for them; but at the end of 1927, 24 of the original homes were accepting this class of patient, making a total of 35. During the 12 years of the existence of the Burke Convalescent Home no less than 12,000 cardiacs had been temporarily interned, while during four years various homes in Greater New York had received as inmates 955 children with crippled hearts.

In the third place, trade schools and other vocational guidance including an employment bureau had begun to function since 1920. The employment bureau in 1927 was a branch of the Hospital Social Service Association. Finally, a movement was under way towards the permanent hospitalization of certain patients as incurables in need of continuous care.

The concerted effort at the salvage of cardiac sufferers hardly includes prevention. The startling increase of 185 deaths in 1925 from heart disease for every 100,000 population over the 132 deaths for 1900 was accounted for in part by the increased average longevity and the strenuous life of our generation, but these factors are hardly amenable to preventive measures on a large scale. Dr. H. Albert of Des Moines began an attempt to determine this causation along more practical lines (*Jl. Amer. Med. Asso.* June 25). Several infectious diseases are well known for their power to damage the heart, either in the young or in later life. The best known is of course acute rheumatism, while second in importance is syphilis. The third, while of much less importance, is the most available for study—scarlet fever. The mortality from this affection has declined greatly, whether from increased mildness of type or medical management. Not so many decades ago a fourth of the victims of this infection used to succumb as against less than 10 per cent at the present time. But the 90 per cent who survive comprise not a few with damaged hearts. It is therefore to be hoped that immunizing campaigns against scarlet fever may reduce the total number of future cardiac deaths, for increased deaths from this cause seem directly due to the lowered death rate. Dr. Albert will next study rheumatism, syphilis, etc., from the same viewpoint.

According to an editorial in *Radiology* for August, the Roentgen ray promises more than ever to become a source of exact information as to the functional capacity and degree of impairment of the heart. The editor refers to work being done by Ruggles of the Pacific Coast and the roentgenologists of the University of Wisconsin. It has been well shown that an enlargement of the heart of from 10 to 15 per cent is an indication of organic disease and that systolic murmurs in a heart of normal dimensions may be regarded as functional. The roentgenologist can be of the greatest assistance in the periodical examinations now required by insurance companies and life extension institutes.

HEATH, Perry Sanford. American newspaper publisher, editor and politician, died at Washington, D. C., March 30. He was born at Muncie, Ind., Aug. 31, 1857. He was educated in the schools of Muncie, and at twenty-one established the first daily newspaper there. Three years later he started a paper at Aberdeen, Dakota. From 1881 to 1893 he was a newspaper correspondent at Washington and in Europe. In 1888 and 1892 he served as manager of the literary department of the Harrison Presidential campaigns. He was instrumental in framing the constitutions of the new states of North and South Dakota, and declined appointment as provisional Governor of South Dakota. He also declined a nomination, with probable election, to Congress from an Indiana district. From 1894 to 1896 he conducted the *Commercial-Gazette* of Cincinnati, relinquishing the duties to become field manager of the McKinley nomination campaign and the subsequent election campaign. President McKinley appointed Mr. Heath first assistant postmaster general, and as such he inaugurated the rural free mail delivery system in the United States. In 1900–04 he was secretary of the Republican National Committee. After his retirement from public life he became owner and publisher of the *Tribune*, Salt Lake City, Utah, and he established the Salt Lake *Telegram* in 1902. He wrote *A Hoosier in Russia* (1887).

HECHT, Elias. American flutist, died at San Francisco, April 18. He was born at Atherton, Cal., Aug. 14, 1879. In 1911 he founded the San Francisco Quintet Club as an amateur organization. Through the excellence of its ensemble it attracted the attention of the Pacific Musical Society, under whose auspices it made its first public appearance in 1916 as the San Francisco Chamber Music Society. Participating in important festivals, it soon won for itself a national reputation. After the death of its founder the remaining members of the quintet reorganized it as the Persinger Quartet.

HEDJAZ. See Arabia.

HELIUM. See Chemistry, Industrial.

HELLEU, ā′lẽ′, Paul César. French dry-point etcher and painter, died at Paris, March 24. He was born at Vannes, France, Dec. 17, 1859, and studied painting at the École des Beaux-Arts with Gérôme, although he early became a member of the impressionistic school. His greatest fame was gained as a dry-point etcher, his instructor being James Tissot, and he is ranked among the highest masters of the art of his time. His works in water colors and in oils also won commendation from the critics and acceptance by the public. His principal study was the portraiture of modern women, stylishly and beautifully clad, and in this he was eminently successful, in France and in America. He did not confine himself to portraiture, but included mural decorations. Examples of his work are found in the decorations of the Grand Central Terminal, New York City; the ceiling, especially, which represents the firmament, has been greatly admired. Helleu used a diamond-pointed needle for his etchings, and drew directly upon the copper plate, employing a line that was sure and that eliminated everything but the essential. He visited America in 1906, 1912 and 1920, and painted more than sixty portraits, mainly of women. Examples of his work are to be found in the Luxembourg and other galleries in Paris. France honored him by selection as a chevalier of the Legion of Honor.

HEMPHILL, James Calvin. American journalist, died at Abbeville, S. C., November 20. He was born at Due West, S. C., May 18, 1850, and graduated at Erskine College in 1870. After serving with smaller newspapers, Mr. Hemphill became a member of the staff of the *News and Courier*, Charleston, S. C., in 1880, and he was connected with that paper for thirty years. His editorials were widely quoted, and he was one of the most influential newspaper men in the southern part of the United States. He was connected also, at various times, with the *Times Despatch*, Richmond, Va.; the *Observer*, Charlotte, N. C.; the *Journal*, Spartanburg, S. C., the *Public Ledger*, Philadelphia, Pa.; and the *New York Times*. He was first vice president of the Associated Press in 1909, and in that year and in 1910 he delivered the Bromley lectures on journalism at Yale University. Erskine College conferred on him the degree of LL.D. in 1909.

HENDRIX, The Rev. Dr. Eugene Russell. American clergyman, died at Kansas City, Mo., November 11. He was born at Fayette, Mo., May 17, 1847. He graduated at Wesleyan University in 1867 and at the Union Theological Seminary in 1869, and in 1870 entered the ministry of the Methodist Episcopal Church South. He served as pastor of various churches, and from 1878 to 1886 was president of Central College, Fayette. In the latter year he was elected bishop. For more than half a century Bishop Hendrix was a leader in virtually every movement undertaken by his denomination, but his outstanding achievements were in the missionary field. His work took him to China, Japan, Korea, Mexico and Brazil. In 1908 he became the first president of the Federal Council of Churches of Christ in America, retaining the office until 1912. At the time of his death he was the retired senior bishop of the Methodist Episcopal Church South. He wrote: *Around the World* (1878; based on his missionary activities); *Skilled Labor for the Master* (1900); *The Religion of the Incarnation* (1903); *The Personality of the Holy Spirit* (1904); *Christ's Table Talk* (1908); *If I Had Not Come* (1916).

HENGELER, Adolf. German painter, died December 4. He was born in 1862. He was one of the most prominent painters of Munich, and taught in the Academy of Art of that city. His principal work was done as an illustrator for the well known periodical, *Fliegende Blätter*, to which he contributed more than 4000 drawings.

HERCULANEUM. See Archæology.

HEREDITY. See Zoölogy.

HERRERA Y PINA, âr-rā′rȧ ē pē̆′nȧ, The Most Rev. José Juan De Jesus. Mexican clergyman, died at Monterey, Mex., June 17. He was born near Mexico City, 1865. He studied at the Latin-American College, Rome, for fourteen years, ending in 1890, and then returned to Mexico to enter upon a church career. He became a bishop in 1907 and was elevated to the Archbishopric of Monterey in 1920. In the controversy between the Roman Catholic Church and the Mexican government, Archbishop Herrera advocated a policy of "peaceful opposition." In March, 1926, he issued a pastoral letter in which he advised priests to abandon their churches rather than conform to the requirements of the lay authorities, and he advised parishioners not to attend services held by a conforming priest. (See Mexico, in The New International Year Book, 1926.)

HESSE, hĕs. Since November, 1918, a republican state of the German Republic, situated in the western part of Germany; formerly a grand duchy of the German Empire. Area, 2968 square miles; population, at the census of 1925, 1,347,279. The capital is Darmstadt with a population of 89,465. Other important cities are: Mayence, or Mainz, with 108,537 (with suburbs); Offenbach, 79,362; Worms, 47,015; and Giessen, 33,600. In 1925 there were 958 public elementary schools with 4088 teachers and 142,451 pupils. The areas and yields of the chief crops in 1925 were: Wheat, 63,535 acres, 53,302 tons; rye, 141,595 acres, 103,378 tons; barley, 104,937 acres, 84,127 tons; oats, 117,490 acres, 80,035 tons; potatoes, 150,417 acres, 992,149 tons; 34,022 acres under vines, yielding 8,783,888 gallons of wine. On Dec. 1, 1925, there were 288,198 cattle, 53,005 sheep, 289,712 swine, and 147,879 goats. The ordinary revenue and expenditure for the year 1926 were estimated to balance at 132,221,938 marks. The funded debt as of Jan. 1, 1926, was 1,333,912 marks, and the floating debt 9,650,000 marks. The government has a uni-cameral legislature and a responsible ministry. As a result of the elections of Dec. 7, 1924, the Landtag was composed as follows: Majority Socialists, 26; Democrats, 9; German People's party, 8; Centre (Catholics), 11; German Nationalists, 5; Hessian Peasants' Union, 6; Communists, 4; other parties, 6. The Landtag is composed of 70 members elected for three years. The cabinet was headed by Herr Ulrich, premier and minister of foreign affairs. Other members were H. Henrich, Finance; H. von Brentano, Interior and Justice; H. Raab, Labor and Economic Affairs.

HIDES. See Leather.

HIGGINSON, Sir George Wentworth Alexander. British soldier, died at Marlow-on-Thames, England, February 1. He was born June 21, 1826, and at the time of his death was the oldest general in the British army. He lived in the reigns of five British sovereigns, from George IV to George V, and was known personally to all of them. He was at one time military instructor of Edward VII, then Prince of Wales. After studying at Eton, he entered the British army in 1845, receiving his commission in the Grenadier Guards from the Duke of Wellington. He served in that regiment thirty years, including the time of the Crimean War. He was twice promoted for gallantry in the field. He reached the rank of general in 1890, and was retired in 1893. General Higginson received many honors, including the Grand Cross of the Order of the Bath and the Grand Cross of the Royal Victorian Order, and membership in the Legion of Honor of France. He wrote: *Seventy-one Years of a Guardsman's Life* (1916).

HIGH SCHOOLS. See Education in the United States.

HIGHWAYS. See Roads and Pavements.

HILL, George Andrews. American astronomer, died at Washington, D. C., August 29. He was born at Elizabeth, N. J., Apr. 11, 1858. After graduation at Columbia College he joined the staff of the United States Naval Observatory, Washington, D. C. He engaged in special work in the line of the fundamental determination of star positions, the determination of longitude by wireless, astronomical constants and variation of latitude. At the time of his death he was the senior astronomer of the observatory. He was a member of the Astronomical and Astrophysical Society of America, and contributed many articles on astronomy to scientific journals.

HILLIARD, hĭl'yard, Robert Cochran. American actor and playwright, died at New York, June 6. He was born at New York, May 28, 1857. He was educated in private schools and entered a stock broker's office, but abandoned a business career for the professional stage, after giving, as an amateur, evidence of histrionic talent. His first professional appearance was made as a star in *False Shame* in Brooklyn, N. Y., Jan. 18, 1886. His success was rapid. He succeeded Maurice Barrymore as leading man in Lily Langtry's company, in 1887. His personal appearance was greatly in his favor, and at one time he was called "the handsomest man on the American stage." He took the part of Perry Bascomb in the great success, *Blue Jeans*. As early as 1892 he acted in a play, *Adrift*, written by himself. In the same year he appeared in *The White Squadron*. Among the other plays in which he had leading rôles were *Mr. Barnes of New York*, *Sporting Life*, *The Nominee*, *Lost*, *24 Hours*, *The Mummy*, *The Sleepwalker*, *The Girl of the Golden West*, *The Argyle Case*, *The Pride of Race* and *The Littlest Girl* (written by himself). In the last named play he made his London début, in 1896. He retired in 1922.

HIND, Charles Lewis. British editor, essayist and art critic, died September 6. He was born in 1862 and was educated privately and at Christ's Hospital. From the time of the publication of his first book, *The Enchanted Stone*, in 1898, until his *Claud Lorrain and Modern Art*, in 1926, Hinds issued a long list of books dealing with life, art and literature. His *Landscape Painting: From Giotto to Turner* (2 vols., 1923 and 1924) is a valuable work of reference for names, dates and pictures, and, with others of his books, won high commendation from critics. He was editor of *The Pall Mall Budget*, 1893–95, and of *The Academy*, 1896–1903. In his editorial capacity he lent encouragement to Stephen Phillips, Francis Thompson, H. G. Wells, Arnold Bennett and other writers who achieved distinction.

HINE, Charles De Lano. American soldier, and railway and industrial reorganization expert, died at New York, February 13. He was born at Vienna, Va., Mar. 13, 1867. After graduation at the U. S. Military Academy, 1891, and the Cincinnati, Ohio, Law School, 1893, he was attracted to railroading and resigned his army commission to become a freight train brakeman. He rose successively through the positions of switchman, yardmaster, conductor, chief clerk, trainmaster, assistant superintendent, right-of-way agent, general superintendent and general manager. His work as a reorganizer of railways won widespread recognition, and at the time of his death he was a consultant for the New York, New Haven and Hartford Railroad. During the Spanish-American war he left railroading temporarily to resume military life, and as major of the District of Columbia volunteers he saw active service at Santiago, Cuba. In the World War he acted first as organizer of the ammunition, engineer and sanitary trains of the New York National Guard, and then as colonel commanding the Sixty-Ninth Regiment of New York. He fought in several actions, but was detailed by General Pershing in February, 1918, for transport organization work. However, he returned to his regiment and fought incognito at St. Mihiel. Colonel Hines wrote: *Letters From an Old Railway Official to His Son* (1904; second series, 1911) and *Modern Organization* (1912).

HINE, Francis Lyman. American banker, died at Glen Cove, N. Y. October 9. He was born at New Milford, Conn. Dec. 6, 1850. He was educated at the Oxford Academy, Oxford, N. Y., and entered commercial life first at New Milford and then at New York, as a clerk. He worked first as a salesman for a dry goods house and then became representative of the Nashawannuck Manufacturing Company, of New York, owner of mills in Massachusetts. After experience as a broker, Mr. Hine entered banking as vice president of the newly formed Astor Place Bank, and in 1896 he became cashier of the First National Bank. In the rise of this bank to high place in the world of finance, Mr. Hine bore a great part. He became its president in January, 1909, retiring Jan. 11, 1922, and becoming chairman of the executive committee. Mr. Hine was a director or trustee of many large corporations, including the American Can Company, the American Radiator Company, the American Surety Company of New York, the Home Life Insurance Company, the Lehigh Valley Coal Sales Company, the National Biscuit Company, Phelps, Dodge & Company, Inc., and the United States Rubber Company.

HIRTH, hērt, Friedrich. Former professor of the Chinese language and the history and literature of China at Columbia University, New York, died at Munich, Bavaria, January 9. He was born at Gräfentonna, Saxe-Coburg-Gotha, Apr. 16, 1845. He graduated at the gymnasium in Gotha, 1865, and studied at the

Universities of Leipzig, Berlin and Greifswald. From 1870 to 1897 he was in the Chinese maritime customs service, and acquired much of the knowledge which won for him high rank as one of the world's authorities on the Chinese language and literature, and the history of China. In 1900 Count von Bülow took him into consultation on the matter of the Boxer indemnity. In 1902 he became professor of Chinese and head of the Chinese department of Columbia University. He retired from that post in 1917. He was the recipient of high honors from numerous learned societies. He wrote many books on Chinese art, literature and history, and contributed to European and Chinese journals. The topics relating to China and the Chinese in the second edition of The New International Encyclopædia were from his pen.

HISPANIC SOCIETY OF AMERICA, The. An international organization founded in 1904, in New York City, to establish a public library and museum designed to be a link between the English-, Spanish-, and Portuguese-speaking peoples, and to advance the study of the Spanish and Portuguese languages, literature, and history, and the study of the countries wherein Spanish and Portuguese are or have been spoken languages. Since 1904, when a collection of paintings, manuscripts, maps, and coins, and a library of about 40,000 volumes, were placed in charge of the Society, valuable additions have been made to this collection, and a number of temporary exhibitions have been held of the works of noted Hispanic artists. Membership in the Society is limited to 100, is honorary, and includes specialists and scholars of all nationalities distinguished in the Hispanic field. The Society has published over 200 catalogues, reprints of old manuscripts, and monographs. The *Revue Hispanique* is published every two months in Paris. The museum and headquarters of the Society are at 156th Street, west of Broadway, New York City. The president for 1927 was Archer M. Huntington and the secretary, George Bird Grinnell.

HISTORICAL ASSOCIATION, American. A society for the promotion of historical studies and writing, formed in 1884 by a group of American scholars and chartered by Congress in 1889. Under provision made by the United States government, it publishes annual reports, and is charged with the office of communicating its proceedings and its information on the state of historical study and writing to the secretary of the Smithsonian Institution, for transmission to Congress.

In 1927 the Association had some 3400 members who represented not only every State of the Union, but also Canada and many European and South American countries. It invites to membership not only those engaged in historical work and teaching, but all feeling a sufficient interest in historical science to prompt them to join. Meetings of the Association are annual. That of the year 1927 was held December 28–30 at Washington, D. C. Among the topics discussed at the various conferences were: The Problems of the Far East; The Spanish Empire in America in the Eighteenth Century; Roman Imperialism; Post War Problems of the Minor Slavs; Mediæval Institutions; History and Science; and Governmental Support of Historical Endeavor.

For the encouragement of historical research the Association offers two biennial prizes of $200 each, for the best monograph, printed or manuscript, in the English language, submitted by a writer who has not achieved an established reputation. The Herbert Baxter Adams prize, awarded in odd years for an essay in the history of the eastern hemisphere, went in 1927 to W. F. Galpin of Syracuse University for his essay on *The Grain Supply of England during the Napoleonic Period.* In even years the Justin Winsor prize is awarded for an essay in the history of the western hemisphere, including the insular possessions of the United States. Two annual prizes for which no awards were made in 1927 were: The George Louis Beer prize of $250, in honor of its founder, the late George Louis Beer, for the best work upon any phase of European international history since 1895; and a medal struck in honor of Jean Jules Jusserand, former Ambassador of the French Republic to the United States and a former president of the Association, for the best work on intellectual relations between America and one or more European countries. A fifth prize, established in accordance with the terms of the bequest of Miss Mathilde M. Dunning, provides that the income from the sum of $2000 shall be used for the John H. Dunning prize to be offered for the best historical essay by a member of the Association dealing preferably with historical matter connected with the Southern States during the reconstruction period.

The official organ of the Association is *The American Historical Review* (quarterly). The *Annual Report* is also published, containing proceedings, important papers read at the annual meetings, texts of significant documents, reports on American archives, reports on history teaching, and papers on agricultural history. An additional publication issued during 1927 was: *Annual Report, 1922, vol. I.* Officers for the year were: President, Henry Osborn Taylor; first vice president, James H. Breasted; second vice president, James Harvey Robinson; secretary, John S. Bassett; treasurer, Charles Moore; assistant secretary-treasurer, Patty W. Washington; editor, Allen R. Boyd. New officers elected for 1928 at the annual meeting in 1927 were: President, James H. Breasted: first vice president, James Harvey Robinson; second vice president, Evarts B. Greene. The other officers remained the same as in 1927.

HISTORY. See Literature, English and American; French Literature; German Literature; Scandinavian Literature; Spanish Literature, etc.

HOCKEY. Hockey added to its American popularity in 1927, the games of the National Hockey League attracting record crowds, while the sport in colleges and preparatory schools also flourished as never before. The race for supremacy in the National League was of the keenest, six United States teams and four from Canada participating in the struggle. The Ottawa Senators finally captured the league title and this same brilliant aggregation of "ice men" also carried off the Stanley Cup, emblematic of the world's championship.

Among the American colleges Dartmouth, Harvard, Princeton and Yale possessed unusually strong teams, with Harvard making the best showing. The Crimson sextette defeated Yale twice and Dartmouth once, the second clash with the Hanoverians resulting in a tie.

The winners in the various professional leagues were: National, Ottawa Senators; Canadian, London Panthers; Canadian-American, Springfield Indians; Prairie, Calgary Tigers; American Association, Duluth Hornets.

The victors in the several amateur organizations were: Ontario (senior), Toronto "Varsity-Grads"; intermediate, London "Battery"; junior, Owen Sound "Greys"; Canadian collegiate, McGill University; American collegiate, Harvard, Dartmouth; U. S. Amateur, University Club, Boston; Metropolitan, Knickerbockers of New York City.

HODDER-WILLIAMS, Sir (John) Ernest. British publisher, died on April 8. He was born at Bromley, England, Sept. 16, 1876, and was educated at the City of London School, at University College, London, and at Paris and Berlin. His career as a publisher was in the firm founded by his grandfather, Matthew Henry Hodder (now Hodder & Stoughton). Besides being one of the leading book publishing firms of England, the house publishes *The British Weekly*, *The Bookman*, and *The Lancet*. Mr. Hodder-Williams was knighted in 1919 and was made a Companion of the Victorian Order in 1921. He was also the recipient of honors from Continental countries, including Italy and Belgium. He wrote: (with E. C. Vivian) *The Life of Sir George Williams, Founder of the Y. M. C. A.*, and *The Way of the Red Cross;* the late Queen Alexandra contributed a preface to the latter work.

HOGARTH, David George. British archæologist, died at Oxford, England, November 6. He was born at Barton-on-Humber, England, May 23, 1862, and was educated at Winchester and at Magdalen College, Oxford. In 1886–93 he was a tutor at the college, and later became a fellow. During the course of his travels in Asia Minor and the neighboring regions (at various times from 1887 to 1894), he directed excavations at Paphos, Dêr-el-Bahari, Alexandria, Fayûm, Naukratis, Cnosus and the Dictæan Cave, Zakro, the Artemisium in Ephesus, Assiut and Jerablus. Much of his work was done for the British Museum. It established for him a high reputation as an archæologist, and in 1897 he was chosen to head the British School at Athens. In 1909 he became Keeper of the Ashmolean Museum at Oxford, retaining that position until his death. He became President of the Royal Geographical Society in 1925, after having received the Founder's Gold Medal in 1917. For his work in the World War, Dr. Hogarth, on whom Cambridge University conferred the honorary title of Litt.D., received the distinction of a Companion of the Order of St. Michael and St. George, and also the Order of the Nile, Third Class, and the Order of Nahda, of the Hejaz. During the War he served as a commander in the Royal Naval Volunteer Reserve. He was also director of the Arab Bureau, holding a post for which he was peculiarly well fitted, because of his intimate knowledge of the Arabs and their country. With Sir Ronald Storrs and Colonel Cornwallis, he met the Emir (later King) Feisal in a secret conference on the coast of Hejaz. This led to the famous "revolt in the desert" which changed the course of history in that part of the world. Dr. Hogarth wrote: *Devia Cypria* (1890); *A Wandering Scholar in the Levant* (1896); *Philip and Alexander of Macedon* (1897); *The Nearer East* (1902); *The Penetration of Arabia* (1904); (with others) *Excavations at Ephesus: The Archaic Artemisia* (1908); *Ionia and the East* (1909); *Accidents of an Antiquary's Life* (1910); *The Ancient East* (1914); *Carchemish I* (1914); *The Balkans* (1915); *Hittite Seals* (1920); *Arabia* (1922); *The Wandering Scholar* (1925); *Kings of the Hittites* (Schweich Lectures) (1926).

HOG CHOLERA. See Veterinary Medicine.

HOGS. See Livestock.

HOLDENITE. See Mineralogy.

HOLIDAY, Henry. British artist, died on April 15. He was born at London, June 17, 1839, and after early education at home went to Leigh's and the school of the Royal Academy. He was a friend of Holman-Hunt and Burne-Jones. He exhibited first at the Royal Academy in 1858. His work comprised mainly decorations, mural paintings, stained glass, mosaics and the like, but he found time for painting in oil and for sculpture. He invented a new form of enameling on metal in relief, to extend the use of the material to large-scale work.

HOLLAND. See Netherlands.

HOLLAND VEHICULAR TUNNEL. See Roads and Pavements; also Tunnels.

HOLLMAN, Joseph. Dutch violoncellist, died at Paris, in January. He was born at Maestricht, Oct. 15, 1852. Having won, in 1870, the first prize at the Brussels Conservatory, where he had been a pupil of Servais, he studied four years more under Jacquard at the Paris Conservatory. From the time of his brilliant début in 1875 until his retirement in 1916, when he took up his residence in Paris, he visited all the principal cities of Europe and made four tours of the United States. Saint-Saëns wrote for him his second cello concerto. Hollmann's outstanding qualities were a tone of rare beauty, and exquisite charm in rendering smaller works. He wrote two concertos for cello and orchestra and several solo pieces.

HOLY CROSS COLLEGE. A Roman Catholic college under the Society of Jesus, at Worcester, Mass.; founded in 1843. The enrollment for the autumn of 1927 totaled 1040 in the regular course, with a distribution as follows: seniors, 216; juniors, 238; sophomores, 272; freshmen, 260. There were 60 in the B. S. course, as follows: seniors, 10; juniors, 13; sophomores, 11; freshmen, 26. The faculty had 80 members. The library contained 100,000 volumes. President, the Rev. John M. Fox, S. J.

HOME CARE. See Child Welfare.

HOME DEMONSTRATION WORK. See Agriculture Extension.

HOME ECONOMICS. See Agricultural Extension Work, and Food and Nutrition.

HONDURAS, hŏn-dōō'räs. A Central American republic, bounded on the north and northeast by the Caribbean Sea, on the southeast by Nicaragua, on the southwest by Salvador and the Pacific Ocean, and on the west by Guatemala. Capital, Tegucigalpa.

Area and Population. The estimated area is 44,375 square miles; population, Jan. 1, 1923, according to official figures, 673,408, mostly Indians with a strain of Spanish blood. The chief towns with their populations according to the latest available statistics are: Tegucigalpa, 38,950; Santa Rosa, 13,000; Santa Barbara, 6000; San Pedro, 8000; and Juticalpa, 8000. The chief ports are: Amapala on the Pacific, and Porto Cortez and Omoa on the Atlantic.

Education. Primary instruction is free and compulsory between the ages of seven and 15. In his message read before Congress on Jan. 1, 1927, the President spoke in part as follows: "It is to be desired that our system of education, now too theoretical and pedantic, should be replaced by one more fitted to the necessities and ideals of the time, a system which may better prepare our younger generation for an honorable means of livelihood. Plans for a vocational school for women are now being considered." During 1926, 863 public and 34 private schools were open, making a total of 897, in which 28,048 pupils were enrolled. Agricultural training has been given to boys, while the special instruction given to girls showed good results in an exposition of feminine handiwork. On Nov. 8, 1926, the president signed an order authorizing the institution of vacation classes to be taught by the students of secondary and professional schools and of the upper grades of the elementary schools all over the country. The courses were to be given for the benefit of illiterate persons and the general population, and was expected also to be of no small benefit to the students acting as teachers. At Tegucigalpa there are a national university and military and aviation schools.

Production. Agriculture is the principal industry and the chief product, bananas. They are grown mostly along the Atlantic coast, and constitute the main export. For the year ending July 31, 1925, 15,988,631 bunches of bananas were exported, all but 2,000,000 of them going to the United States. Coconuts are grown extensively on the Pacific coast, and fine grades of tobacco and coffee are produced. The cultivation of sugar is of increasing importance; 27,963,700 pounds were exported in 1924. The mineral resources include gold, silver, copper, lead, iron, zinc, and antimony. Straw hats and cigars are manufactured for the local market.

Commerce. According to figures published in the press of Tegucigalpa, exports for 1926 amounted to 26,912,012 silver pesos, or 2,945,905 silver pesos more than those of the previous year. The exports subject to duties were valued at 20,379,907 silver pesos and the free exports at 6,532,105 silver pesos. Gold coin to the amount of 3000 pesos, silver coin to the amount of 22,321 pesos and 100,000 pesos in American bank notes were sent out of the country. The chief exports were bananas, silver, and sugar. The following figures are taken from a statistical table on Honduran imports and exports prepared by the General Revenue Bureau:

Year	*Imports*	*Exports*
1915–16	$4,452,109.47	$5,238,206.10
1916–17	6,293,162.28	6,696,814.57
1917–18	4,784,449.36	5,783,663.55
1918–19	6,931,376.00	5,997,741.00
1919–20	12,860,762.32	3,472,362.56
1920–21	16,722,699.71	5,428,587.12
1921–22	12,804,258.49	5,886,406.76
1922–23	14,343,278.72	10,016,270.32
1923–24	11,137,917.61	7,897,046.61
1924–25	12,752,763.34	11,983,053.81
1925–26	9,899,949.53	13,456,005.70

Finance. *The Boletín Legislativo* for June 11, 1927, published the following figures on the budget for 1927–28, which went into effect on August 1, 1927:

Revenues	*Pesos*
Customs	3,547,000.00
Monopolies	2,418,000.00
Stamp taxes	366,000 00
Services	1,250,000.00
Various revenues	271,747.13
Special revenues	1,815,245.85
Total revenues	9,662,992.98
Expenditures	
Government, Justice, and Public Health	1,985,128.45
Foreign Relations	293,980.88
Public Instruction	867,920.00
Promotion, Agriculture, and Labor	2,119,359.00
War and Marine	1,894,042.94
Treasury	1,228,620.15
Treasury and Public Credit	1,278,941.56
Total expenditures	9,662,992.98

Communications. The total length of railway mileage is approximately 934 miles, most of it being used in the cartage of bananas from the interior to the seacoast.

Government. According to the constitution of Oct. 3, 1924, the executive power is vested in a president nominated and elected by popular vote, and holding office for four years; legislative power is in a chamber of deputies consisting of 43 members chosen for four years directly by popular vote. President in 1927, Dr. Miguel Paz Barahona. See Guatemala.

HONDURAS, British. See British Honduras.

HONG KONG. A possession of Great Britain at the mouth of the Canton River, about 90 miles to the south of Canton; comprising an irregularly shaped island, 11 miles long from east to west, varying from 2 to 5 miles in breadth, with an area of 32 square miles; also the opposite peninsula of Kowloon, separated from it by a strait about a half mile wide. Total area, 391 square miles. In 1916 a scheme was begun for the reclamation of 9,500,000 square feet of land from the sea in Kowloon Bay; this project was still in progress in 1927. The population, according to the census of 1921, was 625,166, of whom 612,310 were Chinese; estimated in the middle of 1925 at 874,420. The movement of population in 1925 was: Births, 3654; deaths, 14,991. In the same year the number of Chinese immigrants was 91,622 and the number of emigrants, 140,534. While education is not compulsory, the schools are under government inspection and required to keep certain standards. The total number of pupils in all schools in 1925 was 39,738 and the total expenditure on education, $1,019,905. For higher education there is the British University of Hong Kong which is attended mostly by Chinese students.

The chief industries are sugar refining, shipbuilding, rope-making, the manufacture of tobacco, cement and knit goods, and tin refining. The latest available statistics for trade are those of 1925 when the imports were valued at £43,484,410, and the exports, £40,353,906. The revenue for 1924 was £2,874,895 and the expenditure, £3,173,763. In 1925, 41,336 vessels, including 20,947 junks and 5386 steam-launches, representing altogether 32,770,499 tons entered and cleared the port in the foreign trade. Besides these it was estimated that 13,500 fishing boats put into the bays and harbors of Hong Kong in the course of the year. The colony is under a governor aided by executive and legislative councils. Governor in 1927, Sir Cecil Clementi (appointed in 1925).

HOOKWORM DISEASE. By 1917, owing to the efforts of the Rockefeller Commission, it was estimated that over 200,000 sufferers from this malady in the Southern United States had been restored to health, this comprising by far the greater number. At a later period we find the same body waging war against the same disease in other parts of the world. It is however a mistake to look upon the parasite and its effects as a mere memory. Dr. C. W. Stiles, the well known parasitologist, summed up the present status of the disease in the *Journal of the American Medical Association* for Feb. 12, 1927. Twenty years previously one could stand on the busiest corner of the main street of the average southern city for an afternoon and recognize anywhere up to 10 badly infested hookworm patients; "dirt eaters," in the local vernacular. This state of affairs, it is to be hoped, is gone forever, but there were still plenty of cases of mild infestation and of healthy carriers between which groups it is often impossible to distinguish, for the former may seem outwardly to be well. Moreover, it has been learned that the hookworm count in the stools is not a criterion of health, for a patient with anywhere up to 2000 worms may pass as a well individual, while conversely one with only 100 may show signs of mild infestation. The problem had therefore taken on a new and difficult phase for it was not easy to control officially people in relative good health.

HOPS. The production of hops in 1927 in the five countries—Germany, Belgium, France, Czechoslovakia and the United States—reporting to the International Institute of Agriculture, Rome, was estimated at 81,841,000 pounds as compared with 70,199,000 pounds in 1926 and 62,246,000 pounds, the average yield for the five years 1921–25. The acreage in these countries over 1926 was increased by 8.4 per cent and over the five-year period mentioned by 27.6 per cent, while the corresponding increases in production were 16.6 per cent and 31.5 per cent respectively. According to this report Czechoslovakia produced 21,609,000 pounds, Germany 15,873,000 pounds, France 11,521,000 pounds and Belgium 4,448,000 pounds. In 1926 Germany produced only 5,562,000 pounds and France 8,881,000 pounds, while in Czechoslovakia the yield was about the same as for the preceding year and in Belgium the yield showed a decrease of 564,000 pounds. In Great Britain, where 37,184,000 pounds were produced in 1926, efforts on the part of the English Hop Growers' Association were continued to reduce the acreage. In view of the large supplies in the hands of the organization from the preceding year's harvest, it was recommended that the area be reduced by 20 per cent. In 1926 the hop area was 25,600 acres and early in 1927 it was reported that a reduction of 4805 acres had been promised by members and non-members of the association. A similar request in 1926 for a 10 per cent reduction was reported as carried out by the non-cropping system or by grubbing the plants.

The hop production of the United States in 1927, as estimated by the Department of Agriculture for the three principal producing States —California, Oregon and Washington—was 29,794,000 pounds on 24,600 acres at the rate of 1211.1 pounds per acre. These figures compare respectively with 31,522,000 pounds, 20,800 acres and 1515.5 pounds for the preceding year. The average farm price on Dec. 1, 1927, in these three States was 22.9 cents per pound while the corresponding price the year before was 23.1 cents per pound. According to the estimates reported for 1927 Oregon produced 15,040,000 pounds on 16,000 acres, California 9,900,000 pounds on 6000 acres, and Washington 4,854,000 pounds on 2600 acres. The average yields per acre for the three States were 940, 1650 and 1867 pounds respectively. Provisional reports placed the exports of hops from the United States for the year ended June 30, 1927, at 13,369,000 pounds as against 14,998,000 pounds for the preceding fiscal period. The corresponding imports were 470,000 and 581,000 pounds respectively.

HORR, THE REV. DR. GEORGE EDWIN. American clergyman, died at Newton, Mass., January 22. He was born at Boston, Jan. 19, 1856. He graduated at Brown University, in 1876, and studied at the Union Theological Seminary, 1876–77, and at the Newton Theological Institution, 1879. After serving in the ministry of the Baptist Church at Tarrytown, N. Y., and Charlestown, Mass., in 1891 he became editor-in-chief of *The Watchman.* In 1903 he became professor of church history at the Newton Theological Institution, and in 1908 its president. In 1913 he was the Dudleian lecturer at Harvard and in 1923 the Ingersoll lecturer. Brown conferred on him the degree of D.D. in 1896, Colby College that of LL.D. in 1915, and Harvard University that of S.T.D. Dr. Horr wrote: *Hid in the Heart* (1903); *The Training of the Chosen People* (1907); *The Great Ministry* 1908); *The Baptist Heritage* (1923); *The Christian Faith and Eternal Life* (1923).

HORTICULTURE. Horticultural interests embrace such a wide diversity of climate and soil in the United States that satisfactory conditions can not be expected to prevail everywhere in any given year; yet, as a whole, 1927 proved to be a good horticultural year. Temperature declines to 19°F. in Florida in January caused great damage to the orange crop, fortunately without severe injury to the trees. However, as a result there was dumped on northern markets a vast quantity of frost injured oranges and grapefruit, greatly to the disgust of consumers. California, on the other hand, marketed to advantage an unusually large crop of high grade oranges, lemons, and other fruits.

The 1927 apple crop in the United States and Canada was much smaller than that of the preceding year but in many localities brought prices sufficiently higher to offset to a considerable degree the reduced yields. The unusual demand for grapes stimulated by the enactment of the liquor prohibition laws failed to justify the greatly expanded plantings, and as a result markets were badly glutted at the height of the season with wine grapes, bringing great loss to the growers and the shippers. Table grapes reacted to the general depression but soon recovered normal values. Vegetable producers enjoyed a satisfactory year, the yields in most cases being larger than those of 1926. White potatoes yielded well and brought satisfactory returns to the growers. Ornamental horticulture continued to interest a large and increasing number of people, as was evidenced by the growing membership in the large national societies devoted to special plants, such as the rose, dahlia, and gladiolus.

THE SITUATION ABROAD. Despite unfavorable early predictions, the apple crop in England and Continental Europe was large, and materially interfered with the sales of the more attractive and more expensive fruit imported from North America. As late as October 12, United States trade commissioners in Europe reported large local supplies as a cause for relatively low prices and poor demand. The strong recovery of the German market was shown in the fact that Germany bought in the 1926–27 season 250 per cent as many American apples as in the preceding season. The European pear crop was, on the other hand, relatively small. The French prune crop was abundant, while that of Jugo-Slavia, another important producing centre, was reported as 50 per cent of normal. The walnut crop in France was abundant and of very good quality. Grapefruit continued to increase in popularity in European markets, but that Florida and Porto Rico may not always dominate the grapefruit markets of the world was indicated in the shipment of fruit from northern Argentina to London. Oranges were produced in largely increased quantities in Palestine, over 1,000,000 cases being shipped from Joppa during the 1926–27 season. Southern Rhodesia also produced a fine orange crop, the shipment of which began early in May.

Important developments also occurred in vegetable production. Tomato exports from the Bahama Islands totaled over 9,000,000 lbs. during the winter season, the greater part of this crop being shipped to New York City. Spanish onions continued to be an important commodity, some 664,000 bu. being shipped to the United States up to November 30. The Mexican west coast vegetable movement for the 1927–28 season slowed down considerably, the acreage estimate being reduced from 60,000 to 36,000, due to the ravages of insects and also to the economic situation. The Canadian apple crop, according to the fruit branch of the Dominion Department of Agriculture, was much smaller in 1927, being 2,720,800 bbls., as compared with the five-year average of 3,327,590 bbls. All provinces except Nova Scotia showed a notable decline in apple production.

FOREIGN TRADE. Based upon data obtained from the U. S. Bureau of Foreign and Domestic Commerce covering the first 10 months of 1927 there was shown an appreciable gain in the total value of exported horticultural products in 1927 as compared with the corresponding period in 1926. The total value of imported horticultural products for the same period shows a remarkable agreement with the preceding year, the values being $106,534,487 in 1927 and $106,332,909 in 1926. The total value of exported horticultural products was $111,413,425 for the first 10 months of 1927 and $95,573,583 for the similar 1926 period.

Among individual import items showing considerable increased value in 1927 as compared with 1926 were bananas, olives, fresh cherries, walnuts, dried beans, fresh tomatoes, canned tomatoes, and onions. Import items to show a sharp decline in value in 1927 included grapefruit, preserved cherries, dates, figs, shelled almonds, filberts, chick peas, and white potatoes.

With a few striking exceptions, export values for horticultural products in 1927 were closely comparable to those of the preceding year; fruits, especially those in the raw state, alone showed any considerable variation in values. Notable increases in value were registered by the grapefruit, orange, apple, pear, and dried apricot.

PRODUCTION IN 1927. Several remarkable departures from 1926 production were revealed in the 1927 data released Dec. 19, 1927, by the Bureau of Agricultural Economics of the U. S. Department of Agriculture. The 1927 apple crop was estimated at 123,455,000 bu., just about one-half of the 246,524,000 bu. crop of 1926. Values were, however, quite similar, $171,078,000 in 1927 and $178,233,000 in 1926. The total peach crop for 1927 was 45,463,000 bu. as compared with 69,865,000 bu. in 1926. The pear crop of 1927 totaled 18,072,000 bu. as compared with 25,249,000 bu. in 1926, but sold for about 7 per cent more. Grape yields for the two years were, on the other hand, highly comparable, 2,423,413 tons in 1926 and 2,464,712 tons in 1927. The orange crop of California and Florida dropped off somewhat in 1927, being 32,540,000 boxes as compared with 38,867,000 boxes in 1926. Grapefruit in Florida declined from 7,800,000 boxes in 1926 to 6,300,000 boxes in 1927. The lemon crop of California fell off from 7,712,000 boxes in 1926 to 6,400,000 boxes in 1927. Cranberries showed a sharp decrease, from 743,600 bbls. in 1926 to 496,000 bbls. in 1927. The strawberry crop in 1927 reversed the general fruit situation and showed a sharp increase, from 277,940,000 qts. in 1926 to 342,284,000 qts. in 1927.

Vegetable crops as compared with fruit crops showed a general upward trend in 1927. Tomatoes were estimated at 1,621,500 tons as compared with 1,375,800 tons in 1926. Asparagus yields in 1927 were estimated at 7,874,000 crates as compared with 7,813,000 crates in 1926. Celery was reported at 7.407,000 crates in 1927 and 6,476,000 crates in 1926 and cabbage 1,162,600 tons in 1927 and 1,034,200 tons in 1926.

White potatoes showed a sharp increase in production, from 354,328,000 bu. in 1926 to 402,149,000 bu. in 1927, bringing, however, some $113,000,000 less to the growers. Sweet potatoes yielded 93,928,000 bu. in 1927 as compared with 82,703,000 bu. in 1926, but also returned less to the grower. Peanuts yielded 866,822,000 lbs. in 1927 as compared with 631,825,000 lbs. in 1926. The onion crop of 1927 was estimated at 22,576,000 bu., an increase from 20,945,000 bu. in the preceding year. Spinach increased from 124,000 tons in 1926 to 141,000 tons in 1927. Among vegetables to show but little change in yield are lettuce, 17,652,000 crates in 1927 and 17,150,000 crates in 1926; cucumbers 8,366,000 bu. in 1927 and 8,855,000 bu. in 1926; peppers 3,502,000 bu. in 1927 and 3,890,000 bu. in 1926; cantaloupes 15,272,000 crates in 1927 and 14,393,000 crates in 1926; green peas 236,800 tons in 1927 as compared with 261,100 tons in 1926. A few items showed sharp declines—sweet corn for canning purposes from 816,000 tons in 1926 to 395,800 tons in 1927; watermelons from 69,698,000 in 1926 to 57,220,000 in 1927.

As contrasted with yield data, figures for total values were generally very similar for the two years. increases or decreases in yields being largely offset by a rise or decline in unit values.

Tentative estimates on the part of commercial interests indicated a very short 1927–28 citrous crop in Florida, approximately only one-third of that of the preceding season.

Horticultural Quarantines. The effective administration during the year of some 22 foreign plant quarantines restricting and safeguarding the entry of plants and of plant products known to be carriers resulted in the interception and destruction of many dangerous pests and well justified their placement, even if certain interests were temporarily harmfully affected. The embargo on narcissus bulbs resulted in an unprecedented activity in various parts of the country, particularly the Atlantic and Pacific Coast States, in the production of these bulbs, and apparently laid the foundations for a profitable home industry. It is to be confidently expected that in a very few years the United States will produce ample bulbs to supply its own requirements. In an effort to eradicate narcissus pests already established in this country restrictions requiring the treatment of bulbs were placed upon interstate shipments.

The Parlatoria date scale which for a time threatened the new date growing industry of the southwest was kept under control in 1927 by drastic eradication measures, investigations in certain date growing regions of the Old World having shown this pest to be fully capable of completely destroying the date growing industry if allowed to go uncontrolled. The Mexican border along the Rio Grande River continued to be an important point of entry for dangerous pests and was carefully guarded during the year; but for the first time satisfactory coöperation was obtained with the Mexican authorities insuring greater safety in the future.

Coöperative Movements. In the realization that the apple, erstwhile king of fruits, was losing out in competition with the highly advertised orange and dried fruits, prominent growers and dealers in all parts of the United States united to form a national association, Apples for Health, Inc., to stimulate the use and sales of apples. Some progress was made by distributing posters and other advertising material in the apple season, and a systematic campaign was planned for 1928, which it was expected would focus the attention of every family in the country upon the health and food values of the apple.

Meanwhile, California citrous fruit growers continued to reap the benefits of well directed coöperation. According to E. G. Dezell, General Manager, the California Fruit Growers' Exchange handled in the 1926–27 season 38,891 carloads of oranges and grapefruits and 11,577 carloads of lemons, approximately 72 per cent of the total citrous crop of that State. The total f.o.b. value of the California citrous crop was estimated at approximately $120,000,000, the largest amount in the history of the industry. In an attempt to advertise their fruit, the California Fruit Growers' Exchange stamped over 2,500,000 oranges with the exchange brand "Sunkist." Florida growers, on the other hand, had a difficult year due to the after effects of the hurricane and winter freeze. Much dissatisfaction among certain growers resulted from the efforts of the Florida Citrus Exchange to restrain shipment of frozen fruits; yet it was generally conceded the proper course to pursue.

The Spray Residue Problem. The agitation which was started during the 1926 season by the action of the British government in fining certain retailers for dispensing American fruits with arsenic residue above the accepted tolerance resulted in unusual activity in 1927 on the part of American fruit growers and investigators in efforts to remedy the situation. The problem was naturally most acute in the irrigated sections of the Pacific Northwest where the absence of rain during the growing season prevented the natural removal of spray residues. Oregon and Washington Experiment Station workers found that washing apples and pears in dilute hydrochloric acid, followed by thorough rinsing with clear water, effectively reduced the residues to below the legal tolerance of both domestic and foreign regulations. As a result, there were developed various commercial machines operated on the continuous belt principle and capable of handling large quantities of fruit. Under normal conditions Eastern orchardists were not deeply concerned in the arsenic problem. However, in certain areas, notably the Japanese beetle infested sections of New Jersey and eastern Pennsylvania, the large number of poison sprays required in combating the insect left sufficient residues to cause trouble in domestic markets. Here again washing with dilute acids was resorted to. Some progress was made in attempts to develop non-arsenic sprays for the control of codling moth and other insects as a means of solving the serious spray residue problem.

Trends in Research. Delving deeply into the underlying causes of variations in the response of plants to environment and applied treatments, horticultural investigators made noteworthy progress during 1927. A definite correlation between starch content of grape cuttings and their rooting ability was observed at the California Experiment Station (*Hilgardia* [*California Sta.*] 2 (1927), No. 8, pp. 329–49). Immersion of cuttings in solutions of various chemicals, especially oxidizing agents such as manganese sulphate, materially increased rooting. Studies in apple pollination at the Ohio Experiment Station (*Amer. Soc. Hort. Sci. Proc.*, 23 (1926), pp. 307–315) showed that in certain varieties, irrespective of the condition of the tree or of the character or amount of pollen applied, certain of the flowers on the clusters are incapable of setting fruit, suggesting the presence of abnormalities in the embryo. The wood of hardy varieties of apples was found at the Minnesota Experiment Station (*Minnesota Sta. Tech. Bul.* 42 (1926)) to contain more carbohydrates and total organic nitrogen than that of tender varieties. The shoots of tender varieties suffered injury in freezing chambers much more quickly than those of hardy varieties, thus suggesting a means of quickly determining relative hardiness of new varieties and seedlings.

Observations at the Wisconsin Experiment Station (*Wisconsin Sta. Research Bul.* 78 (1927)) on the root systems of a large number of apple varieties showed that in almost all cases the scion exerts a well defined influence upon the size and type of growth in the roots. At the California Experiment Station (*Hilgardia* [*California Sta.*], 2 (1926), No. 5) investigators found that severe pruning of grape vines materially decreased the viability of the pollen. In some cases the pollen of lightly pruned vines exceeded in viability by over 600 per cent that of severely pruned vines. Interesting results were secured at the Illinois Experiment Station in studies of the effect of oil sprays on the transpiration of fruit tree leaves, the reductions being in some cases as high as 75 per cent. Cultivation, long believed to be essential in vegetable growing, was found at the New York Cornell Station (*New York Cornell Sta. Mem.* 107 (1927)) to be chiefly of importance as a means of weed control rather than of moisture conservation.

Further work at the New Hampshire Experiment Station upon the influence of phosphorus fertilizers on vegetable crops showed phosphorus in acid phosphate to stimulate early growth in the squash and the cabbage, thus corroborating earlier results with the tomato. An ingenious method of determining viability in seed corn was developed at the Illinois Experiment Station (*Jour. Agr. Research* [U. S.], 35 (1927), No. 2, pp. 147–66). Leachings of the seed in distilled water indicated a lack of viability, the membranes of the weakened seeds apparently being more permeable to colloids than those of strong, viable seeds. The use of ethylene as a medium for hastening the maturity of fruits and vegetables received a great deal of attention from practical growers and investigators during the year, as it was found that in proper concentrations this gas was capable of cutting approximately in half the time required for coloring citrous fruits and tomatoes and blanching celery. To avoid misuse of ethylene, California passed a law prohibiting the artificial coloring of citrous fruit which did not test at least 8 parts of soluble solids to 1 part of acids and with at least 25 per cent of yellow color before picking.

Miscellaneous. The eighth International Horticultural Congress was held in Vienna, Austria, from Sept. 20 to 24, 1927. Delegates representing 16 countries were present and considered various international horticultural problems such as the introduction and naming of new varieties, standardizing of colors, training of gardeners, application of investigational results, and the standardizing of root stocks. The next congress was to be held in London in 1930.

The Pennsylvania Railroad opened a new produce terminal in New York City with a capacity of 700 carloads on display at one time. It was expected that this new terminal would greatly relieve the congestion which had frequently occurred at the height of a shipping season and thereby expedite the handling of fresh produce and fruits. The extent of the Japanese citrous growing industry was indicated in the arrival in Vancouver, B. C., in December of several vessels carrying oranges, one ship with 300,000 boxes, a cargo equivalent to 150 carloads. Judging by the number of high grade Japanese contributions, it was evident that the Japanese scientists were making important progress in horticultural knowledge and supporting their fruit industry in an effective manner. Dr. L. H. Bailey, formerly of Cornell University and the recognized dean of American horticultural writers, was honored by selection as president of the American Association for the Advancement of Science for the year 1927.

Necrology. Charles Sprague Sargent (q.v.), director of the Arnold Arboretum, Jamiaca Plain, Mass., died Mar. 22, 1927, at the age of 85 years. Under his guidance there had been assembled the finest collection of hardy trees and shrubs in North America. Special consideration was given to the introduction of Asiatic ornamental species, many of which have proved to have great horticultural value. John Dunbar, Superintendent of Parks, Rochester, N. Y., and well-known originator of lilacs, crabapples, and other ornamental plants died June 13, 1927, after a long and useful career.

Bibliography. Contributions to the horticultural literature of 1927 were numerous and covered a varied field. Among notable publications appearing during the year are A. C. Beal, *The Gladiolus and Its Culture* (New York and London, 1927); *International Conference on Flower and Fruit Sterility* (Mem. Hort. Soc. New York, 3, 1927); E. H. M. Cox, *The Modern English Garden* (Country Life, [1927]); edited by K. Foerster and C. Schneider, *Das Dahlienbuch* (Berlin, 1927); S. Fraser, *American Fruits: Their Propagation, Cultivation, Harvesting, and Distribution* (New York and London, 1927); V. R. Gardner, F. C. Bradford, and H. D. Hooker, *Orcharding* (New York, 1927); A. C. Hottes, *A Little Book of Perennials* (New York, 1927); L. H. Johnson, *Foundation Planting* (New York, 1927); F. T. McLean, W. E. Clark, and E. N. Fischer, *The Gladiolus Book* (Garden City, N. Y., 1927); J. G. Millais, *Magnolias* (London and New York, 1927); A. I. Perold, *A Treatise on Viticulture* (London, 1927); F. F. Rockwell, *The Book of Bulbs* (New York, 1927); R. Schlechter, rev. by E. Miethe, *Die Orchideen* (Berlin, 1927); E. A. White, *American Orchid Culture* (New York, 1927); E. H. Wilson, *Plant Hunting* (Boston, 1927); J. C. Wister, *The Iris* (New York and London, 1927).

HOUGH, hŭf, Charles Merrill. American jurist, died at New York, April 22. He was born at Philadelphia, May 18, 1858, and, after graduating at Dartmouth in 1879, studied law at Philadelphia and was admitted to the bar there. He moved to New York in 1888, and eight years later was appointed a United States district judge. In 1916 he became a judge of the United States Circuit Court of Appeals. Judge Hough was noted especially for his knowledge of maritime and bankruptcy law and for his rulings on those subjects. Dartmouth College conferred the degree of LL.D. on him in 1908.

HOWARD UNIVERSITY. A non-sectarian coeducational institution of higher education at Washington, D. C.; incorporated by the Act of Congress, Mar. 2, 1867, "for the education of youth in liberal arts and sciences," open to students without regard to race, but principally for the education of negroes. It includes a medical school, school of law, and schools of liberal arts, education, commerce and finance, applied science, music, and a department of physical education. Since 1879 Congress has made appropriations for the University, expendable under the supervision of the Secretary of the Interior, who is a patron ex officio of the Board of Trustees. The total enrollment for the autumn of 1927 was 2140, and for the summer session, 330. There were 191 members on the faculty as follows: Academic, 73; medical, dental, and pharmaceutical colleges, 83; law, 12; religion, 6; music, 7; applied science, 10. The productive funds amounted to $774,116.75, and the income for the year (1926–27), $31,689.30. The library contained 44,543 volumes. Gifts received during the year 1926–27 were as follows: from the United States government, for maintenance, $218,000; from the United States government toward gymnasium and medical school buildings, $229,435.06; medical endowment fund, $149,914.82; miscellaneous, $2795.47. The new medical school building, costing, with equipment, $500,000 was completed and an appropriation of $150,000 was received from the government for a new dormitory for women. Administrative officers: Mordecai W. Johnson, S.T.M., D.D., president; Emmett J. Scott, A.M., LL.D., secretary-treasurer.

HUMBERT, ŭn′bĕr′, Charles. French politician, died at Paris, November 1. He was born in Lorraine in 1866, and in his youth was very poor, working as a shepherd and a waiter in a restaurant. At 19 he was called to serve in the army, and at the end of his two years' term obtained entrance to a military academy. After rising to the rank of captain, he abandoned the army for a career in journalism and politics. He became a member of the staff of *Le Matin*, of Paris, and in 1906 was elected a deputy from Verdun. In the Chamber of Deputies, and in the Senate, to which he was elected in 1908, he made himself conspicuous by his vigorous militarism and his demands for a larger army and stronger forts. Upon the outbreak of the War, in 1914, he redoubled his activities in that direction. In that year he was sent to America to make purchases of munitions of war. In August, 1915, Humbert became involved with Bolo Pasha in the purchase of *Le Journal*, of Paris, and the senator was placed on trial with Bolo and others on charges of conducting "defeatist" campaigns. Bolo was convicted and shot as a traitor, with Lenoir, another conspirator. Joseph Caillaux, former premier, was sentenced to three years' imprisonment and five years' exile, while Humbert was acquitted. It was said in Humbert's defense that he never consented to the publication of "defeatist" articles in *Le Journal* and became implicated with Bolo Pasha only through his need of money wherewith to purchase the paper. After the war Humbert lived very quietly, but it was reported shortly before his death that he had become reconciled with Raymond Poincaré, who had been a fellow senator from the Department of the Meuse, and that he intended to become a candidate for Parliament.

HUMPHREYS, Alexander Crombie. American educator and engineer, died at Morristown, N. J., August 14. He was born at Edinburgh, Scotland, Mar. 30, 1851, and was taken to the United States in 1859. From 1866 to 1872 he was employed by a New York insurance company, and in 1872 he became secretary and superintendent of a gas company at Greenville, N. J. The problems of the company led him to take a course in the Stevens Institute of Technology, although his time was limited so that he was told he would require six years to complete the regular four-year course. He finished it in four years, however, graduating in 1881, at the age of 30. From this beginning he rose to recognition as one of the leading engineers and educators of the United States. The year after his graduation he became chief engineer of the Pintsch Lighting Company, of New York, and in 1885 he went to Philadelphia as chief engineer and general superintendent of the United Gas Improvement Company. He held that office until 1892, in the meantime having founded the gas engineering firm of Humphreys & Glasgow Company, of London and New York. In 1890 he made the first successful installation of a water gas plant in England, and his firm established similar plants in Australia, New Zealand, China, Belgium and Germany. He was also for a time president of the Buffalo Gas Company. In 1902 he was called to the presidency of Stevens Institute of Technology, Hoboken, N. J., and he remained at Stevens until his retirement in July, 1927. He was also a trustee and member of the executive committee of the Carnegie Foundation for the Advancement of Teaching. Dr. Humphreys' services to the cause of education and to public life were recognized by the bestowal on him of honorary degrees by such universities as Columbia, Pennsylvania, New York, Princeton, Brown and Rutgers, and the Rensselaer Polytechnic Institute. He was a member of the more prominent engineering societies in the United States and Great Britain, and in many of these he held office. His interests were widely diversified, and he was active in a large number of causes looking toward the advancement of life in America.

HUNGARY. A state of Central Europe; formerly a kingdom constituting with Austria the Dual Monarchy of Austria-Hungary. Capital, Budapest.

Area and Population. Before the World War Hungary had an area of 125,609 square miles; area at the time of the census of 1920, 35,875 square miles. Population before the War, according to the census of Dec. 21, 1910, 20,886,487; population at the census of Dec. 31, 1920, 7,980,143; estimated Dec. 31, 1925, 8,368,273. After the census of 1920 was taken, an additional area of 36 square miles, with a population of 7000, was awarded to Hungary, Budapest, the capital, had a population at the 1920 census of 928,996. Other cities with a population of more than 100,000 at the same census were: Szeged, 119,109; and Debrecen, 103,186. The movement of population in 1925 was: Births, 235,480; deaths, 142,150; marriages, 74,382. The population of 1920 was distributed according to religion as follows: Roman Catholics, 5,096,729, or 63.9 per cent; Helvetian Evangelicals, 1,670,144, or 21 per cent; Augsburg Evangelicals, 497,012, or 6.2 per cent; and smaller numbers of Greek Catholics, Greek Orientals, and Unitarians. The Jews numbered 473,310, or 5.9 per cent.

Education. Public education in Hungary comprises the following grades: Infant schools, elementary schools, industrial and commercial apprentice schools, primary (city) schools, training colleges for teachers, middle or secondary schools, special schools, universities and colleges. Elementary education is compulsory between the ages of six and 12. In the school year 1924–25 there were 1002 infants' schools and permanent foster-homes with 1254 female teachers and 107,362 infants, and three training colleges for female teachers of infant schools. In the same year there were 5374 elementary schools with 16,556 teachers and 694,448 pupils; 359 primary schools with 3648 teachers and 90,776 pupils; and six training colleges for teachers in primary schools. For secondary education there were 27 gymnasia, 71 realgymnasia, 22 modern schools, and 32 secondary schools for girls, with a total number of teachers of 2955 and 60,842 students. For higher education there are four universities as follows: Budapest, with 321 professors and 5908 students; Szeged, 80 professors and 1032 students; Pecs, with 60 professors and 1289 students; and Debreczen, with 55 professors and 801 students. There are also many theological schools and a number of technical institutions for higher learning, such as technical high schools, etc.

PRODUCTION. The principal industry of Hungary is agricultural pursuits and about two-thirds of the people are engaged in or dependent upon them. Even in average years the crops are sufficient for the home supplies and leave surpluses for export. The accompanying table from the *Statesman's Year Book* for 1927 shows the acreage and yield of the principal crops of Hungary for 1924–25:

Crop	*Area* *Acres*	*Yield* *Quintals*
Wheat	3,585,675	19,506,881
Rye	1,712,231	8,261,662
Barley	1,039,322	5,536,820
Oats	732,026	3,705,931
Maize	2,674,010	22,345,481
Potatoes	652,582	23,095,057
Sugar-beets	164,544	15,274,103
Grapes	546,919	75,705,060[a]

[a] Gallons of wine.

The estimated yield for 1926 was: Wheat, 18,833,423 quintals; rye, 7,027,182; barley, 3,473,512; oats, 20,022,889; maize, 18,324,408; sugar beets, 13,671,225 metric tons. In 1926 there were 884,746 horses, 1,847,449 cattle, 1,804,066 sheep, and 2,519,969 pigs. In 1925 the production of coal was 5,742,293 tons. The bauxite industry was assuming importance. The industries of Hungary are mainly based on agriculture and include milling, distilling, the manufacture of sugar, hemp, flax, etc. The number of manufacturing plants is placed at 3043, employing 195,305 workmen, with an output of 1,698,000,000 gold crowns.

COMMERCE. In spite of its continued expansion, Hungarian foreign trade in 1926 resulted in a trade balance that was 47,700,000 gold crowns more unfavorable than in 1925. Imports during 1926 were valued at 835,400,000 gold crowns and exports at 748,100,000 gold crowns, whereas imports for 1925 were valued at 739,700,000 gold crowns and exports at 700,100,000 gold crowns. Factors other than increased imports which affected the trade balance adversely were the great decrease in flour exports as a consequence of the high import duty placed on flour by the adjacent states, particularly Czechoslovakia, and the lessened activity in the finishing and repair industries. The curtailment of sales in the near-by flour markets, however, reacted to increase grain exports.

The value of imports from all the more important countries increased, with the exception of Austria and Czechoslovakia. The percentages of the total exports of Hungary to Germany and Austria showed slight increases, whereas the share of Czechoslovakia had decreased by 5 per cent. In 1926, Czechoslovakia furnished 23 per cent of the imports; Austria, 20 per cent; Germany, 17 per cent; and France, 3 per cent. Of the exports Austria took 37 per cent, Czechoslovakia 20 per cent, Germany 13 per cent, and Poland 2 per cent. In practically every case imports showed a substantial increase in value; only in cotton and woolen textiles were there decreases. Lumber, the leading import commodity, increased 28 per cent in value, accounted for largely by the renewed building activities of the year and to some extent also by the importation of larger quantities of firewood. Mineral oils, machinery and apparatus, crude metals, and coal increased 54, 39, 12 and 11 per cent, respectively, illustrating the increase and expansion of manufacturing industries in Hungary under the high protective tariff. A large number of new concerns had sprung up in the textile industry, as a result of which the imports of cotton and wool textiles had declined while imports of weaving yarn for further manufacture had increased. With the exception of the electrical equipment industry, the industries of Hungary were generally only of local importance.

Although the yield of crops in 1926 was only fairly satisfactory and did not equal the 1925 production, the total exports during 1926 increased as a result of higher prices for agricultural commodities and of the creation of new export markets. The outstanding feature of Hungary's export trade was the rapid decline of flour exports and a coincident increase of wheat exports; flour exports were 32 per cent less in value than in 1925 and wheat 83 per cent greater. In addition to flour, there were decreases in the exports of cattle, sugar, corn, and wool. Exports of rye, poultry and poultry products, lard and meat products, and feathers made considerable gains over the 1925 figures.

VALUE OF HUNGARY'S FOREIGN TRADE, BY LEADING COMMODITIES

[*In thousand gold crowns: 1 = $0.2026*]

Commodity	*Imports* *1925*	 *1926*
Lumber	72,085	92,615
Cotton textiles	89,016	75,728
Coal	46,875	51,369
Wool textiles	48,779	44,430
Machinery and apparatus	29,005	32,549
Cotton yarn and thread	29,191	30,268
Paper and paper goods	25,028	29,849
Crude metals	18,125	25,189
Tobacco	10,012	22,133
Mineral oils	13,139	20,224
Leather, prepared	14,658	18,840
Ironware	15,873	18,358
All others	328,414	392,206
Total	739,700	835,400

Commodity	*Exports* *1925*	 *1926*
Wheat	63,857	116,920
Livestock	83,734	79,644
Flour	103,197	70,166
Rye	31,043	43,788
Poultry	26,418	33,828
Lard and bacon	15,576	28,351
Eggs	19,989	25,820
Sugar	29,025	24,036
Corn	32,585	21,583
Meat, fresh and prepared	19,156	20,954
Wool	17,888	15,712
Electrical equipment	13,982	15,613
Feathers	12,751	14,586
All others	230,899	238,109
Total	700,100	748,100

FINANCE. The budget estimates for 1926–27 provided a revenue of 1,144,177,922 pengős and an expenditure of 1,143,554,386 pengős, leaving a surplus of 623,536 pengős. The budget estimates for 1927–28 provided revenues of 1,192,421,960 pengös and expenditures of 1,192,255,320 pengös, leaving a surplus of 166,640 pengös. (For a discussion of the establishment of the pengó as a unit of currency consult preceding YEAR BOOK.) The public debt of Hungary on Dec. 31, 1925, was given at 1,599,389,000,000 gold crowns, of which 858,322,000,000 gold crowns were pre-war debt.

In the fall the minister of finance reported that the state revenues during the fiscal year 1926–27, which ended June 30, 1927, amounted to 901,100,000 pengös as compared with 814,800,000 pengös in the preceding year (the value of the pengó when these figures were published was $0.1747). The greatest increase took place in customs receipts, reflecting increased foreign trade. The turnover tax was also a contributing factor. From July, 1924, to May, 1927, it was estimated that a total of 360,000,000 gold crowns' worth of long-term loans (about $72,000,000) was contracted abroad; the loans included the reconstruction loan, the loans of the cities and counties, and sundry agricultural and industrial loans. The annual interest service of these loans is about 25,000,000 gold crowns (giving an average interest of somewhat below 7 per cent); together with amortization, the total annual burden is believed to be about 35,000,000 gold crowns ($7,000,000). It was difficult to make a reasonably accurate estimate of foreign short-term loans (3 to 12 months) circulating in Hungary. Their total amount was estimated (May, 1927) at about 300,000,000 gold crowns, with an annual interest burden of 22,000,000 to 23,000,000 gold crowns. The above estimates placed the total indebtedness of Hungary, contracted within two years and a half, at 660,000,000 gold crowns ($132,000,000), with an annual interest and annuity burden of about 58,000,000 gold crowns ($11,600,000).

COMMUNICATIONS. There are two railway systems in Hungary, the M. A. V. (Royal Hungarian State Railways), which is owned and operated by the government, and the Danube-Save-Adriatic Railway Co., a private corporation. The former is by far the more important, owning about 92 per cent of the country's total mileage. The aggregate length of the trackage of the two companies is 11,817 kilometers, of which main-line trackage comprises 7882 kilometers (891 standard-gauge double track and 6991 single track) and branch lines and sidings account for 3935 kilometers. The Hungarian railway system in 1926 carried 84,557,549 passengers, and 29,184,760 metric tons of freight. The rolling stock of the two companies at the end of 1926 included 2064 locomotives, 34,439 freight cars, 2991 passenger cars, 1008 baggage and mail cars, seven rail-motor cars, and seven rail-motor trailers. The equipment of both lines was in fair condition. Of the total rolling stock 12½ per cent was under repair at the end of the year. Purchases of rolling stock during the year covered 14 passenger cars, 1349 freight cars, seven rail-motor busses, and seven rail-motor bus trailers. Construction work during the year was limited to the maintenance of the roadbed, to the erection and extension of minor station buildings and warehouses, and to various other minor improvements in the main line and siding trackage.

GOVERNMENT. Technically Hungary is a constitutional monarchy with the throne vacant. When the present Horthy rule came into power it was decided to keep the old constitution and let the question of who was to be monarch wait until the people were freed from external pressure. In the meantime Admiral Nicholas Horthy acted as regent. As a result of the elections of December, 1926, the following parties were returned to the legislature: Party of National Unity (Bethlen party), 171; Christian Social Union, 35; Socialists, 14; other parties, 25; total, 245. The ministry originally formed on June 17, 1922, was reorganized on Oct. 15, 1926, as follows: Prime Minister, Count Stephen Bethlen; Foreign Affairs, Dr. Louis Walko; Interior, Dr. Béla Szcitovszky; Finance, Dr. John Bud; Agriculture, John Mayer; Commerce, Maximilian Hermann; Education, Count Kuno Klebelsberg; Justice, Dr. Paul Pesthy; National Defense, Count Charles Csáky; Social Welfare, Dr. Joseph Vass.

HISTORY

As noted in the preceding YEAR BOOK, an important change took place in the Hungarian legislature at the end of 1926. The chief point of interest in this change was the passage of a bill to reëstablish the upper house which had not been in existence since 1918. (For the method of selection and the election of the new members of the lower house and the members of the upper house consult the article on Hungary appearing in the 1926 YEAR BOOK.) Toward the end of January the new bicameral parliament met with all the pomp and splendor of pre-war court scenes. The master of ceremonies was Admiral Horthy, the regent. He read a speech prepared by Prime Minister Bethlen in which the leaning of Hungary toward Italy rather than toward the Little Entente was expressed by the statement that Hungary preferred an outlet to the sea through the port of Fiume rather than through the Jugo-Slav port of Spalato. This statement led to all sorts of conjectures concerning Hungary's future rôle in Central European affairs. It was a well known fact that she did very little toward reconstructing her former position and seemed to be content to let the other smaller states fight among themselves, possibly with the hopes that out of the ashes of an economically bankrupt Central Europe a new and more powerful Hungary could and would arise. Bethlen, along these lines, stated that the time was not ripe for a discussion of the restoration of the monarchy, and that he and the Regent had decided to let the matter rest for at least five years, inasmuch as the people of the country seemed to be perfectly satisfied with the *status quo*.

The orientation of Hungary toward Rome took a definite form in April when Count Bethlen made a trip to Mussolini's capital and signed a treaty of friendship, conciliation, and arbitration with Italy. Immediate speculation was rife throughout Europe as to the meaning of this move. Many believed that Hungary was desirous of obtaining Mussolini's approval for any move she might make along the lines of restoration of the monarchy, while others thought that this move would leave Hungary in a stronger position between Slavic Balkan states and an Austro-German rapprochement. From the point of view of Italy, of course, it was merely another striking proof of her economic and political penetration of the Balkan peninsula. Jugo-

Slavia, Czechoslovakia, and Rumania, the so-called Little Entente, scarcely looked upon the move with approval, particularly since the Conference of Ambassadors of the League of Nations abolished military control over Hungary on March 29, an act which was almost at once followed by the introduction of a measure in the Hungarian parliament to increase the armed forces of the nation.

Toward the close of the year internal conditions in Hungary were seriously upset by anti-Semitic riots and protest meetings against the attitude of the government in suppressing the street sales of certain newspapers which were critical of its actions. The anti-Jewish riots were very widespread and caused considerable comment in the American press. The occasion was the discussion in parliament of a change in the law covering the number of Jewish students which would be allowed to enter each university in the country. The present law permitted only 5 per cent of the students to be Jewish. The riots were caused because the misguided instigators felt that the government might let down the barriers and permit more than 5 per cent to enter the universities. The government itself was to be severely criticized for the issuance of a statement to the effect that it would not guarantee any protection to Jewish students. The opposition in parliament, mainly Socialistic, bitterly but vainly attacked the government for its medieval stand on the Jewish question, and openly accused it of inviting trouble in the future by failure to take a strong hand in the riots, particularly in Budapest.

HUNT, Thomas Forsyth. American agronomist and teacher of agriculture, died on April 5. He was born at Ridott, Ill., Jan. 1, 1862, and graduated at the University of Illinois with the degree of B.Sc. in 1884. He was professor of agriculture at the Pennsylvania State College, 1891–92; professor of agriculture, 1892–1903, at the Ohio State University, and dean of the college of agriculture and domestic science at the same institution, 1896–1903; professor of agronomy at Cornell University, 1903–07; dean of the school of agriculture and director of the Pennsylvania Agricultural Experiment Station of the State College of Pennsylvania, 1907–12; director of the agricultural experiment station of the University of California, 1912–19, and professor of agriculture at the same institution from 1912 until his death. He received the honorary degree of D.Agr. from the university in 1904, and that of D.Sc. from Michigan Agricultural College in 1907. He wrote: (with G. E. Morrow) *Soils and Crops of the Farm* (1895); *History of Agriculture and Rural Economics* (1899); *The Cereals in America* (1904); *How to Choose a Farm* (1906); *The Forage and Fiber Crops in America* (1907); *The Young Farmer* (1913); (with C. W. Burkett) *Soils and Crops* (1913) and (with C. W. Burkett) *Farm Animals* (1914).

HUNTINGTON, George Sumner. American anatomist, died at New York, January 5. He was born at Hartford, Conn., Mar. 21, 1861. He received his academic education at Trinity College, Hartford, Conn., and his instruction in medicine at the College of Physicians and Surgeons, Columbia University, New York, receiving his degree of M.D. in 1884. After serving as an interne at Roosevelt Hospital, New York, 1884–86, Dr. Huntington began the teaching career that won for him a world-wide reputation as a teacher of anatomy; according to some authorities he was the greatest anatomist of modern times. He was, successively, assistant demonstrator of anatomy, 1886–88, demonstrator and lecturer, 1898–89, and professor of anatomy, 1889–1925, at the College of Physicians and Surgeons. He was said to have been the first teacher of anatomy to place the science on an evolutionary basis. In 1904 Columbia conferred on him the honorary degree of Sc.D. Among the students of Dr. Huntington were men known in both America and Europe for their accomplishments as physicians and surgeons. He wrote voluminously, and his writings covered all phases of anatomical research; some of his books, notably *The Anatomy of the Peritoneum*, are standards. From 1899 Dr. Huntington was editor of *Journal of Anatomy and Physiology*.

HUNTINGTON, Henry Edwards. American railroad executive, shipbuilder and art and book collector, died at Philadelphia, Pa., May 23. He was born at Oneonta, N. Y., Feb. 27, 1850, and was educated at public and private schools. He was a member of a family prominent in American history for several generations, and was a nephew of the late Collis P. Huntington, railroad builder, capitalist, and art collector. Henry E. Huntington began his business life as a clerk in a hardware store in Oneonta, but moved soon to New York, where he engaged in the same occupation there. At 21 he was sent by his uncle to St. Albans, W. Va., to look after valuable timber properties. His success there led the elder Huntington to make him superintendent of construction of the Chesapeake, Ohio & Southwestern R. R. He next became general manager, receiver and vice president of the Kentucky Central R. R. and rescued that road from bankruptcy. His first close association with his uncle's roads was as assistant to the president of the Southern Pacific Ry. In 1900 he became first vice-president of the road. He later became president of several subsidiary railroad lines and other corporations and a director or officer of more than a score of important enterprises, including the Newport News Shipbuilding & Drydock Company. When Collis P. Huntington died, in 1900, he left more than $10,000,000 to his nephew, and this legacy, added to the large fortune which the younger Huntington had amassed by his own efforts, enabled him to gratify the taste for the acquisition of books and objects of art which raised him to the very front rank of the world's collectors. Eventually he became the owner and the donor to the public of books, paintings and other art objects which many judicious authorities called the finest private collection in the world. In 1913, after Mr. Huntington's first marriage had been ended by divorce seven years previously, he married the widow of his uncle, who had received $22,000,000 from her husband's estate.

Included in the literary and art treasures assembled by Mr. Huntington first in his home in New York City and then at his estate, San Marino, near Pasadena, Cal., are such highly valued objects as the painting, "The Blue Boy," by Gainsborough, the manuscript of Chaucer's *Canterbury Tales*, a Gutenberg Bible, a score of the earliest Caxtons, a number of first editions of Shakespeare, and the manuscript of Benjamin Franklin's autobiography. The Huntington library is a mine of probably unequaled wealth for historical research. Several times he paid amounts approximating or exceeding $1,000,000 for single collections of books and manuscripts, in America and England. In 1921 it was estimated that he had expended more than $10,000,000 on books and manuscripts and more than $5,000,000 on paintings, and he continued his lavish purchases down to the closing months of his life.

Soon after the purchase of "The Blue Boy," in 1921, it was announced that Mr. Huntington had decided to give his collections of books and pictures to the American public, together with his palace at Pasadena and a maintenance fund of several millions of dollars; they were to come into possession of the public after his own death and that of Mrs. Huntington.

HURD, Henry Mills. American psychiatrist, died at Ventnor, N. J., July 19. He was born at Union City, Mich., May 3, 1843, and was educated at the University of Michigan, graduating from the academic department in 1863 and from the medical department in 1866. The greater part of his professional career was devoted to the study of the problems of psychiatry, and he acquired distinction in that field. From 1878 to 1889 he was superintendent of the Eastern Michigan Asylum, and in the latter year became professor of psychiatry at Johns Hopkins University, Baltimore, Md. He held the chair until 1906 when he was made professor emeritus. From 1889 to 1911 he was superintendent of the Johns Hopkins Hospital. He was president of the American Academy of Medicine, 1896, of the American Medico-Psychological Association, 1898–99, and of the American Hospital Association, 1912. The University of Michigan conferred on him the honorary degree of LL.D. in 1895. He edited numerous books on the conduct of hospitals, and wrote many papers and bulletins on the subject, besides *Hints to Hospital Visitors* (1895), written with Dr. John S. Billings. His last work, published in 1917 in four volumes, was *Institutional Care of the Insane in the United States and Canada.*

HYDRO-ELECTRIC DEVELOPMENTS. See Water Power.

HYDROGEN. See Chemistry, Industrial.

HYDRO-METALLURGY. See Metallurgy.

IANTHINITE. See Mineralogy.

IBAÑEZ, Carlos, President of Chile. See Chile under *History.*

ICELAND. An island state united with Denmark in the person of the king by the act of union of Nov. 30, 1918. Area, variously estimated at from 39,707 to 40,456 square miles; population according to the census of 1920, 94,690; estimated at the end of 1927, 100,000. The capital, Reykjavik, had a population of 23,000 in 1927. All the other towns had populations of less than 3000. The number of foreign-born inhabitants is very small and consists chiefly of Danes and Norwegians. The movement of population in 1925 was: Births, 2546; deaths, 1189; marriages, 622. Although religious freedom is complete, and to be a non-conformist entails no civil disability, there were only 463 dissenters from the endowed national church, the Evangelical Lutheran, at the census of 1920. Primary instruction is compulsory between the ages of 10 and 14, children up to the age of 10 being privately educated as a rule. According to the latest available statistics there were 209 elementary schools, with 318 teachers and 6485 pupils; several continuation schools; and a university at Reykjavik. Only about one-fourth of one per cent of the area of the island is under cultivation, producing chiefly hay, potatoes, and turnips. The crops in 1924 were: Hay, 2,570,000 cwt.; potatoes, 50,000 cwt.; and turnips, 17,000 cwt. Livestock figures in the same year were: Horses, 50,800; cattle, 26,000; sheep, 583,000; and goats, 2600. The fisheries were valued at 28,338,000 crowns in 1922, of which the value of codfish was 25,117,000 crowns and herring, 2,443,000 crowns. According to the Iceland *Year Book* for 1927 the total exports in 1924 were valued at 85,866,967 crowns and the imports at 63,781,417 crowns.

The fisheries made possible this favorable balance of trade. The budget estimates for 1927 showed a revenue of 10,834,134 crowns and an expenditure of 11,109,647 crowns. The public debt of Iceland has been incurred partly by the establishment of telegraph lines and other important public works, partly by increasing the means of the national bank, but mainly owing to the extraordinary expenses caused by the World War (buying of ships and providing commodities). The national debt on Jan. 1, 1926, was 11,800,000 crowns as compared with 18,200,000 crowns on Jan. 1, 1924. The mercantile marine in 1924 consisted of 149 vessels of 24,592 gross tons. Although Iceland has no railways it was reported in 1927 that the government had planned to remedy this deficiency. The Norwegian company, Titan, Ltd., had the contract. The line will run from Reykjavik, the capital, to Thojorsaa, 50 miles, and will cost about $500,000. Construction was to be begun on the railway before May 1, 1929, and is to be completed not later than July 1, 1933. If the company fails to meet these terms, all the work executed falls to the state, without any compensation to the company.

Executive power is vested in the king who acts through a responsible ministry; and legislative power in the king and Althing or parliament, which consists of 42 members, of whom six are elected for eight years, by proportional representation for the whole country, and 36 for four years by universal suffrage. The Althing is divided into two houses, of which the upper has 14 members and the lower 28. The right to vote is possessed by both men and women over the age of 25. King in 1927, Christian X; President of the Council (ad interim), Jon Thorlaksson; Ministers—Justice and Ecclesiastical Affairs (ad interim), Magnus Gudmundsson; Trade and Communications, Magnus Gudmundsson; Finance, Jon Thorlaksson.

IDAHO. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 431,866. The estimated population on July 1, 1927, was 534,000. The capital is Boise.

Agriculture. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, spring	1927	670,000	20,100,000	$19,296,000
	1926	598,000	14,352,000	15,070,000
Wheat, winter	1927	501,000	12,274,000	12,274,000
	1926	447,000	10,281,000	11,103,000
Hay	1927	1,115,000	3,313,000 [a]	28,488,000
	1926	1,126,000	2,889,000 [a]	25,759,000

Crop	*Year*	*Acreage*	*Prod bu.*	*Value*
Potatoes	1927	115,000	24,380,000	13,409,000
	1926	91,000	16,198,000	17,008,000
Oats	1927	143,000	6,721,000	3,360,000
	1926	119,000	4,760,000	2,142,000
Barley	1927	129,000	5,676,000	3,860,000
	1926	112,000	4,144,000	2,486,000
Corn	1927	76,000	3,116,000	2,555,000
	1926	66,000	2,706,000	2,435,000
Sugar beets	1927	80,000	383,000[a]	....
	1926	18,000	108,000[a]	744,000
Dry beans	1927	72,000	1,706,000	4,265,000
	1926	54,000	999,000	2,597,000

[a] tons.

Mineral Production. Lead was again in 1926 the foremost mineral product of the State, and Idaho held third rank among the States as a lead producer. The metal continued to furnish the major part, reckoned by value, of the State's mineral output. Lead production increased to 272,980,212 pounds for 1926, from 253,041,790 pounds for 1925. A lower price, however, approximately 8 cents a pound for 1926 as compared with 8.7 cents for 1925, offset the quantity increase. The total value of lead produced fell consequently, for 1926, slightly below the corresponding total of $22,014,636 for 1925. In the case of zinc, in which the price was maintained, production was high, being 52,614,691 pounds for 1926 as against 31,237,240 pounds for 1925, at 7.5 cents a pound for 1926 as compared with 7.6 cents for 1925. Silver production was slightly above that for the year preceding: 7,556,444 fine ounces for 1926, and for 1925 7,743,439 fine ounces; the average price, however, being lower, 62.4 cents an ounce in 1926, and in 1925; 69.4 cents. Copper production was less, attaining only 1,337,442 pounds in 1926; in 1925 3,297,443 pounds. Gold was produced in minor and declining quantity, 13,669 fine ounces in 1926, as against 20,887 fine ounces in 1925, when the product was worth $431,771. The value of gold, silver, copper, lead and zinc made up all but a small part of the entire mineral production of the State in respect of value, and was $30,969,551 for 1926; for 1925, $30,662,621. Asbestos was mined (1925) to a value of $184,007. Mineral products of the State in 1925 had a total value of $31,611,166.

The value of the gold, silver, copper, lead, and zinc produced from ore mined in Idaho in 1927, according to estimates of the U. S. Bureau of Mines, was about $28,469,000. Despite the decline in metal prices there was a decided increase in the output of silver and lead and a slight increase in gold and copper. A small decrease in zinc resulted from unusual local market conditions. Large increases in both silver and lead were made from the Hecla, Bunker Hill & Sullivan, Sunshine, Sidney, Page, Galena, Black Hawk, United Idaho, Wilbert, Whitedelf, Tamarack & Custer, and Strattons properties. According to published reports mining companies paid dividends amounting to approximately $5,827,400, compared with $8,135,587 paid in 1926. The mine output of gold in 1927 was valued at $289,400 as compared with $282,569 in 1926.

While the output of silver increased to about 8,616,000 ounces in 1927, and the value to $4,885,300, there was an increase in silver produced from lead ores, especially from the Bunker Hill & Sullivan, Hecla, Galena, Whitedelf, and Strattons properties, but the largest increase was in copper-lead concentrate, chiefly valuable for its silver, shipped by the Sunshine Mining Co. The output of copper increased to about 1,843,000 pounds in 1927, and the value to $239,600. The Idaho Metals Co. at Mackay was active the entire year and its output of copper was nearly three times that of 1926. The output of lead increased to 293,600,000 pounds in 1927, but the value decreased from $21,838,417 to $19,877,000 as a result of the decline in the average price of the metal. The Bunker Hill & Sullivan, Morning, and Hecla mines were as usual the three largest producers. The zinc recovered from ore and concentrate decreased from 52,614,691 pounds in 1926 to 50,600,000 pounds in 1927, and the value from $3,946,102 to $3,178,000. The decrease was due not only to the drop in the price of zinc, but to the fact that shipments to Belgium ceased in May when the contract with the Vieille Montagne Zinc Co. terminated. Most of the output was recovered by roasting and leaching at Great Falls, Mont., and nearly all the remainder was shipped to Belgium for smelting.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $4,393,983; their rate per capita was $8.47. They included $546,576 apportioned for education. Totals not included above, of $327,758 for interest payments and $2,784,457 for permanent improvement outlays, brought the aggregate of State expenditure to $7,506,198. Of this, $3,393,424 was for highways; $925,398 being for maintenance and $2,468,026 for construction.

Revenue receipts were $7,917,519; or per capita, $15.26. Of their total, property and special taxes yielded 31.5 per cent, attaining a rate of $4.80 per capita. Earnings of departments and compensation paid the State for officials' services supplied 5.8 per cent of the revenue; 21.2 per cent was derived from the sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a tax on gasoline sales.

Net State indebtedness on Sept. 30, 1927, was $4,705,106, or $9.07 per capita. Property subject to ad valorem taxation had a total valuation of $477,865,522. State taxes levied were $2,205,349, or $4.25 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 2,908.75. There were constructed in 1927, according to the *Railway Age*, 30.14 miles of new first track.

Education. It was provided by law in 1927 that after 1929 all teachers must have qualified by at least two years of normal school training. The unified system of State educational organization continued in force, and received suitable support from the Legislature. Revision of the school curriculum by the State educational authorities was under consideration. The school population of the State in 1927 was given as 141,232. There were enrolled in 1926 in the public schools 119,173 pupils. Of these, 96,454 were in the elementary schools and 22,719 in high schools. Expenditures on public school education in 1927 were approximately $8,400,000. The salaries paid to the teachers of the state of Idaho (superintendents and supervisors excluded) averaged $1,090.15 during the year.

Charities and Corrections. The State Department of Public Welfare had general charge of all matters relating to public health, and supervised certain State institutions. These, with their approximate populations at the end of 1927, were: Northern Idaho Sanitarium for the Insane, Orofino, 300; State School and Colony for the Feeble Minded, Nampa, 300; Idaho Soldiers' Home, Boise. The Idaho Mental Hospital, at Blackfoot, not controlled by the Department, had some 200 inmates. The Idaho State Penitentiary, at Boise, was conducted as a separate institution.

Legislation. The State Legislature convened January 3, and adjourned early in March. It provided for an extensive State building programme for educational, penal and charitable institutions. An increase in the State gasoline tax to the rate of 4 cents a gallon was enacted. A measure was passed to establish at Pocatello a southern branch of the State University. The counties of the State were required to adopt budget systems. The Legislature submitted to the people a proposal to amend the State constitution so as to extend the terms of State officers to four years. The Hoover uniform motor vehicle traffic code was adopted in part. Appropriation of $20,000 was made for a Governor's mansion. An appropriation was made for the Board of Eugenics to enable it to put into fuller effect the State's sterilization act. A law was enacted rendering it criminal trespass to hunt without permission on inhabited property, even though this were not posted. The election law was modified in such manner as to leave the nomination of county and legislative candidates to popular primaries, while placing Congressional, judicial and State officials' nominations in the hands of party conventions. The Governor was empowered to take over and hold in trust the water of Priest, Pend Oreille and Coeur d'Alene Lakes until it might be decided whether the State needed the water, this action being relative to a conference on the Columbia Basin water project.

Political and Other Events. With regard to the State's rights in waters of lakes sought for Federal development in the Columbia Basin project, the moves made by the Governor and Legislature of Idaho to reserve these waters to itself produced a sharp difference of interests with the State of Washington, somewhat like that between Arizona and California over the Colorado River. Plans for the erection of a monument to Governor Steunenberg, assassinated in 1907, in recognition of his service in suppressing disorders in the Coeur d'Alene district, were formed, and an appropriation of $15,000 by the Legislature toward such a monument was matched by private contributions.

Officers. Governor, H. C. Baldridge; Lieutenant-Governor, Oscar E. Hailey; Secretary of State, Fred E. Lukens; State Auditor, E. G. Gallet; State Treasurer, Byron Defenbach; Attorney General, Frank L. Stephan; Superintendent of Public Instruction, Mabelle M. Allen; Inspector of Mines, Stewart Campbell.

Judiciary. Supreme Court: William E. Lee, Alfred Budge, Raymond Givens, Herman H. Taylor, T. Bailey Lee.

IDAHO, University of. A State institution of higher learning at Moscow, Idaho; founded in 1889. The total enrollment for the first semester of 1927-28 was 2038, of whom 1249 were men and 789 were women, the distribution being as follows: college of letters and science, 688; college of agriculture, 109; college of engineering, 192; college of law, 24; school of mines, 50; school of forestry, 90; school of education, 326; school of business, 299; special courses, 37; non-resident, 223. During the 1927 summer session 287 were enrolled, of whom 100 were men, and 187 were women. The income for 1927 amounted to approximately $1,250,000. The library contained 90,000 volumes. President, Alfred H. Upham, Ph.D.

ILLINOIS. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 6,485,280. The estimated population on July 1, 1927, was 7,296,000. The capital is Springfield.

Chicago's population, late in 1926, was estimated on the basis of birth rates and school assessor's statistics as being 3,151,989, an increase of 16.7 per cent over the 1920 official census. The population of the metropolitan area of the city was estimated at 4,100,000. In 1927 the U. S. Bureau of the Census estimated the population of Chicago as of July 1, at 3,102,900.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	8,469,000	254,070,000	$180,390,000
	1926	9,205,000	322,175,000	180,418,000
Hay	1927	3,556,000	5,140,000[a]	58,447,000
	1926	3,115,000	3,662,000[a]	58,387,000
Wheat, winter	1927	2,293,000	30,956,000	37,147,000
	1926	2,163,000	38,934,000	47,499,000
Wheat, spring	1927	216,000	3,888,000	4,549,000
	1926	120,000	2,100,000	2,562,000
Oats	1927	4,008,000	102,204,000	43,948,000
	1926	4,661,000	128,516,000	43,231,000
Potatoes	1927	64,000	5,376,000	6,182,000
	1926	61,000	4,880,000	8,540,000
Barley	1927	453,000	13,364,000	9,756,000
	1926	302,000	9,362,000	5,430,000
Soy beans	1927	394,000	2,288,000	3,203,000
	1926	346,000	1,675,000	2,764,000

[a] tons.

Mineral Production. The State maintained in 1925 its rank of seventh in respect of the total value of minerals produced. In point of bituminous coal production, the source of the chief part of the total value of minerals extracted within its borders, it ranked third of the States. It produced in 1926 a total quantity of 69,366,923 net tons of coal; in 1925, of 66,909,359 tons. This product had for 1926 a total value of $148,604,000; for 1925, of $146,492,000. Illinois blast furnaces produced in 1926, 3,626,330 long tons of pig iron, as against 3,600,484 tons in 1925. This product was valued, for 1926, at $73,460,392; for 1925, at $74,937,781. Coke, another of the products connected with the coal industry, was active in 1926, being produced to the quantity of 3,336,692 short tons, entirely in by-product ovens, as against a quantity of 3,011,497 tons in 1925; and to a value of $25,050,474 in 1926 and in 1925 of $22,568,845. In 1927 due to the strike in the coal fields the output decreased. Clay products, the highest in aggregate value of any outside the coal and iron group, were valued at $36,763,980 for 1925, the latest year of available statistics; for 1924 at $33,591,368. Petroleum production was important, 7,766,000 barrels in 1926 and in 1925, 7,863,000 barrels; in value, $17,300,000 in 1926 and in 1925, $15,235,000. Of Portland cement there were produced 6,747,241 barrels in 1926 and in 1925, 7,101,024 barrels; in value, $11,388,800 in 1926 and in 1925, $11,481,576. The total value of the State's mineral products was $231,658,604 in 1925; in the year 1924 it was $235,796,027.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $43,158,325; their rate per capita was $6.04. They included $8,777,223 apportioned for education. Totals not included above, of $40,952 expended in public service enterprises, $5,667,947 for interest payments and $27,357,093 for permanent improvement outlays, brought the aggregate of State expenditures to $76,224,517. Of this, $26,364,926 was for highways, $2,041,542 being for maintenance and $24,323,384 for construction. The interdepartmental payments attained $319,612.

Revenue receipts were $75,223,910; or per capita, $10.52. Of their total, property and special taxes yielded 51.2 per cent, attaining a rate of $5.39 per capita. Earnings of departments and compensation paid the State for officials' services supplied 4.2 per cent of revenue; 38.5 per cent was derived from the sale of licenses, chiefly on incorporated companies and motor vehicles.

Net State indebtedness on June 30, 1926, was $138,633,018, or $19.39 per capita. Property subject to ad valorem taxation had a total valuation of $4,194,769,417. State taxes levied were $35,655,540, or $4.90 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 11,997.46. New construction in 1927, as reported by the *Railway Age* was 36.09 miles of second track.

Education. Measures enacted by the Legislature in 1927 promoted the distribution of State aid to schools for the purpose of equalizing schooling rather than of aiding districts able to care for themselves; amended the teachers' tenure law; raised salaries of county superintendents. According to comment in the *Journal* of the National Education Association, State school aid in Illinois under the new system of distribution would assist the weaker districts in much larger measure than they had previously been aided.

Charities and Corrections. The State Department of Public Welfare, under an act of 1917, has charge and supervision of the charitable and penal institutions of the State. The current report of this Department, covering the year ended June 30, 1926, gave the following as the average populations of the several State institutions in that year: Elgin State hospital, 2719; Kankakee State Hospital, 3878; Jacksonville State Hospital, 2832; Anna State Hospital, 1830; Watertown State Hospital, 1793; Peoria State Hospital, 2501; Chester State Hospital, 251; Chicago State Hospital, 3135; Alton State Hospital, 1287; Lincoln State School and Colony, 2275; Dixon State Hospital, 1755; Illinois School for the Deaf, 423; Illinois School for the Blind, 211; Illinois Industrial Home for the Blind, 88; Illinois Soldiers' and Sailors' Home, 725; Soldiers' Widows' Home, of Illinois, 101; Illinois Soldiers' Orphans' Home, 508; State Training School for Girls, 433; St. Charles School for Boys, 769; Illinois State Penitentiary, 2430; Southern Illinois Penitentiary, 1540; Illinois State Reformatory, 1321; Woman's Prison, 59; Illinois State Farm, 197. As reported by the Department of Commerce, patients in the State hospitals for mental disease on Jan. 1, 1927, numbered 20,317; the number of prisoners received at the four State institutions in 1926 was 1726.

Legislation. The General Assembly convened in regular biennial session January 5, and adjourned June 30. It enacted a law designed to double the borrowing capacity of the city of Chicago; to this end the law raised the rate of assessed valuation for the city, from 50 per cent, to 100 per cent of the actual value of property assessed. Tax rates were coincidently cut in half, with the exception that the Chicago corporate tax rate as thus altered was then increased by 20 cents. Another act increased the debt limit of the Chicago Sanitary District from 4 per cent of the valuation of property to 5 per cent. A bill placing the State gasoline tax rate at two cents a gallon was enacted. It provided that half of the proceeds should be credited to the hard road fund and half to the counties of the State. The State Senate on its original vote failed to pass this measure, but one of the opposing Senators later demanded reconsideration and on the ensuing ballot that was taken it was passed.

An appropriation bill carrying about $85,000,000 in appropriations for the expenditure of the State departments over a two-year period was enacted. Wagers on horse races within the State under the pari-mutuel system were rendered legal, from July 1. The Director of Agriculture was charged with the administration of the State control over the pari-mutuel system, and fees for application to employ it, and surety bonds to cover the applicants were required. The proceeds were assigned to a State fund for agricultural prizes.

Legislation providing authorization for large outlays by the North Side and the South Side park systems of Chicago was passed; likewise an amendment of the Calumet Harbor act of 1921, incorporating features of that act, of which the constitutionality in its entirety had been impugned, in a previous act of 1913. This measure was designed to promote the Chicago harbor development plan. There was enacted a measure providing immunity, from ousting by *quo warranto* proceedings, for the Governor, who had been threatened with such proceedings on account of the court decision that he owed the State money as a result of acts while he held the office of State Treasurer. An amended primary law greatly increased the number of party committeemen to be elected. Among other statutes enacted, one rendered slander by radio punishable with a fine of $100; another rendered it possible for localities to form mosquito abatement districts. Among important measures that failed of enactment were those for a State reapportionment, for Chicago traction franchises, and for the creation of a State income tax. (See also *Education*, above.)

Political and Other Events. After the State Legislature, like its recent predecessors, had failed to reapportion State representation, Judge Feinberg of the Cook County Circuit Court declared the existing reapportionment act unconstitutional. He rendered November 1 a decision favorable to a taxpayer suit brought by John B. Fergus of Chicago. This decision invalidated both the reapportionment of 1901, then in force, and its predecessor, that of 1893, on the ground that population had shifted since their passage. A mandamus writ was issued to require the county clerk to call elections under the act of 1882. In another suit, brought by Julius Kreeger, a Chicago ward leader, Judge Fisher of the Superior Court on November 10 declared unconstitutional the State primary law of 1927, on the ground that while penalizing nonregistration with disfranchisement, it made insufficient provision for registering voters.

Capital punishment by the electric chair came into practice in Cook County July 1. The State Forester during the year made preliminary surveys looking to State purchase of divers uplands and overflowed bottoms for State forests. In Williamson County, C. Birger, a gang leader, was convicted July 24 of the murder of Mayor Adams, Mayor of West City and alleged protector of a rival gang, and was sentenced to death, two companions receiving life sentences. The headquarters of the Birger gang were bombed by a rival gang January 9, and four were killed. It was then reported that gang hostilities had caused more than 60 deaths in southern Illinois in the course of five years. Union soft coal miners in the State joined the general strike in that industry April 1. They resumed work October 1 under a State-wide agreement continuing the old Jacksonville wage scale until the negotiation of a new scale in February 1929. The Chicago Board of Trade, threatened with hostile legislation, limited trading in future contracts temporarily May 8. The city of Peoria, through its city council, considered plans for the construction of a great river terminal to form part of the proposed Lakes-to-Gulf waterway project.

Chicago elected William Hale Thompson, Republican, mayor in the city election of April 5, Mayor Dever being defeated for reëlection. Thompson obtained a plurality of about 83,000, out of 993,617 votes cast. A home rule proposal, to give the city control of its utilities, failed of ratification by the voters. Soon after Mayor Thompson's inauguration, charges were brought against the city superintendent of schools. William McAndrew, relating to pro-British leanings alleged against him by the Thompson party. He was put on trial September 29, with the object of his removal, but the trial was allowed to drag. It was announced in October that the Mayor had directed one of the trustees of the Chicago Public Library to hunt out all books on its shelves containing pro-British propaganda, and to have them burned. Citizens sought injunctions against such a proceeding, and the Mayor, responding, asserted that while books might be removed from the public shelves, none would be burned.

In the litigation as to the alleged excessive drawing of water from the Great Lakes by the Chicago Sanitary District for the flushing of the Drainage Canal and other city uses, hearings before Charles E. Hughes, special master at the appointment of the United States Supreme Court, continued through March. The Court later denied the State of New York its request to include in its complaint allegations of the harmful effect of the Chicago diversion on New York's power rights in the Niagara and St. Lawrence Rivers. Mayor Thompson announced in Chicago that he would not order the use of water meters as sought by the War Department under the terms of the Federal permit to the city to draw water from the Great Lakes.

In the suit against the Chicago Sanitary District and the State of Illinois, to prevent diversion of an excessive quantity of water through the Chicago Drainage Canal, mentioned above, Charles Evans Hughes, acting as Special Master, filed his report November 23 with the United States Supreme Court. The report found the complaining States to be largely correct in their allegations as to the lowering of the Lake levels, but represented the diversion permit held from the War Department as valid, and recommended dismissal of suit for an injunction against diversion under the terms of the permit, without prejudice to right of suit against diversion if it were made without authority of law.

Dispute among the parties in the Chicago transit situation contributed to the failure of the Legislature to pass city traction legislation. Work done in the year along the lines recommended by the Chicago Plan commission included the widening of La Salle Street, from Washington Street to Ohio Street, at an expected cost of about $7,500,000. At an election on June 6, bond issues for $15,000,000 for the construction of a Town Hall, $10,000,000 for the West Park District. $6,500,000 for the South Park District and $2,000,000 for the Lincoln Park District were approved. The Clarence Buckingham memorial fountain, at the Lake front near the Loop district, modeled on one of the fountains of Versailles, was dedicated August 29. See City Planning.

Officers. Governor, Len Small; Lieutenant-Governor, Fred E. Sterling; Secretary of State, Louis L. Emmerson; Treasurer, G. D. Kinney; Auditor, Oscar Nelson; Superintendent of Public Instruction, Francis G. Blair; Attorney General, O. E. Carlstrom.

Judiciary. Supreme Court: Chief Justice, Oscar E. Heard; Associate Justices: Floyd E. Thompson, Warren W. Duncan, Frank K. Dunn, William M. Farmer, Frederic R. DeYoung, and Clyde E. Stone.

ILLINOIS, University of. A coeducational State institution of higher education at Urbana-Champaign, Ill.; founded in 1867. The enrollment in the autumn of 1927 was 12,033, of whom 8870 were men and 3163 were women, distributed among the several colleges as follows: liberal arts and sciences, 4216; commerce and business administration, 1868; education, 887, engineering, 1695; agriculture, 625; music, 135; law, 386; library, 49; graduate school, 769; medicine, 483; dentistry, 193; pharmacy, 620. 2254 students enrolled for the summer session of 1927, of whom 1336 were men and 918 were women. The number of those on the teaching staff above the rank of assistant was 674. In that grade or lower there were 461. The administrative officers totaled 26. The library contained 708,850 volumes and 99,850 pamphlets. The productive funds from Federal endowment were $649,013, and from private gifts $110,000. The income for the year 1926–27 was $7,825,790, of which $5,947,125 was from the State. During 1927–28 a building for architecture was constructed and additions were made to Lincoln Hall and to the library. President, David Kinley, Ph.D., LL.D.

IMMIGRATION. The U. S. Commissioner General of Immigration, in his survey of the year July 1, 1926—June 30, 1927, discussed the following questions:

Immigrants. During the year, 538,001 aliens were admitted and 253,508 departed, making an alien increase of 284,493 as compared with 268,351 in the preceding fiscal year. Nearly one-half of the immigrants came from the Western Hemisphere and most of these were from Mexico (67,721) and Canada (81,506). Of the European immigrants (168,368), Germany came first (48,513), then Irish Free State (28,054) and Great Britain (23,669). From Italy came 17,197 and from the Scandinavian countries 16,860. From the rest of Europe came 33,975 immigrants. Racially, the following was the distribution of the new arrivals: Mexican, 66,766; German, 56,587; Irish, 44,726; English, 40,165; Scotch, 25,544; French, 19,313; Scandinavian, 19,235; Italian, 18,529; Hebrew 11,483. The newcomers appeared to be spreading over the country and there was a perceptible movement to the Central West and the Pacific Slope States. New York State's net gain of population was 55,501, Massachusetts 20,007, Michigan 24,976, Texas 41,672, California 21,075. Over the Canadian border 95,420 were admitted, 75 per cent of whom were Canadian-born; over the Mexican border 81,539 were admitted, 96 per cent of whom were Mexican-born. During the year only 19,755 aliens were denied admission. In New York, for instance, only five out of every 1000 applicants were barred. Before the War the ratio was 16 out of 1000. See Jews.

Mexican Immigration. The net addition of Mexican immigrants to the country for the fiscal year was 69,685. This was 20,882 below the high year of 1924. The Mexican immigration population is an adult group, 62.1 per cent being over 21 years and three-fourths being male. The unskilled labor group predominated. It was estimated that the Mexican population in the United States had doubled since 1920. There must be fully 1,000,000 Mexicans in the United States, said the Commissioner General of Immigration.

Foreign Service. There were in 1927 technical advisers attached to the consulates in the following European cities: Antwerp, Belgium; Belfast, Ireland; Bergen, Norway; Berlin, Germany; Bremen, Germany; Cobh, Ireland; Copenhagen, Denmark; Cologne, Germany; Dublin, Ireland; Genoa, Italy; Glasgow, Scotland; Gothenberg, Sweden; Hamburg, Germany; Liverpool, England; London, England (2); Naples, Italy; Oslo, Norway; Palermo, Italy; Prague, Czechoslovakia; Rotterdam, Holland; Southampton, England; Stockholm, Sweden; Stuttgart, Germany; Warsaw, Poland. These men were in charge of the pre-inspection work abroad, and so successfully performed was this duty that in the two years' operation of the plan the ratio of the barred individuals to admissions, at New York had been 6 in 1000 (1926) and 4 in 1000 (1927).

Deportations. The Bureau deported during the fiscal year 12,055 undesirable aliens, or 1511 more than were deported in the previous fiscal period.

Alien Inmates of Prisons, etc. The Bureau, in January, made a survey of the number of alien inmates in penal institutions, insane asylums, and hospitals and poorhouses and found a total of 113,105 such.

Visa Petitions. For the year 34,169 petitions were filed by American citizens for the issuance of non-quota visas for wives and unmarried children under 18 years, and for preferential status for children between 18 and 21 years, parents and husbands. A total of 27,623 of the 34,169 was approved.

"Bootlegging" in Aliens. The Commissioner General was of the opinion that "bootlegging" in aliens was one of the most important of the country's unofficial industries. He declared that Cuba and the Bahama Islands serve as the relay stations in this trade, with Florida as the objective. Even the air is being resorted to. Says the Bureau report of this type of alien: "The 'bootlegger' alien is by all odds the least desirable.

Whatever else may be said of him, whether he be diseased or not, or whether he holds views inimical to our institutions, he at best is a law violator from the outset and one whose entrance should be prevented if possible rather than merely penalized by deportation." Unofficial advices had it that as many as 170,000 aliens were smuggled into the country during the fiscal year. There were charges of a system operating across the Canadian border particularly. Cuba was considered another focal point of the smugglers, who, it was said, charged $750 a head for running Japanese, Chinese and Hindus into the United States, and $300 for Greeks and Italians.

Border Patrol. "Bootlegging" was being fought by this arm of the service which was inaugurated in 1924. In 1927 there was a personnel of 781 and the service was equipped with motor cars. The patrol was divided into 11 districts with headquarters at Seattle, Spokane, Grand Forks, Detroit, Buffalo, Montreal, Jacksonville, New Orleans, San Antonio, El Paso, and Los Angeles. During the year the service patrolled 4,559,838 miles (mostly by motor), examined 1,452,721 persons at frontiers, apprehended 19,382 persons seeking unlawful entry of whom 12,098 were smuggled aliens. The service also captured 832 smugglers of aliens.

Statistics. The tables accompanying this article show: (1) Aliens admitted, departed, debarred and deported for the fiscal year ended June 30, 1927, by ports. (2) The net increase or decrease of population, by admission and departure of aliens, by countries, for the same fiscal period. (3) The net increase or decrease of population, by admission and departure of aliens, by race or people, for the same fiscal period. They are taken from the report of the Commissioner General of Immigration for 1927. Tables IV and V are taken from the 1927 report of the Secretary of Labor.

TABLE I
ALIENS ADMITTED, DEPARTED, DEBARRED, AND DEPORTED, AND UNITED STATES CITIZENS ARRIVED AND DEPARTED, FISCAL YEAR ENDED JUNE 30, 1927, BY PORTS

	1927									
	Aliens admitted			*United States citizens arrived*		*Aliens departed*			*United States citizens departed*	*Aliens deported after landing*
Port	*Immigrant*	*Non-immigrant*	*Total*		*Aliens debarred*	*Emigrant*	*Nonemigrant*	*Total*		
All ports	335,175	202,826	538,001	378,520	19,755	73,366	180,142	253,508	369,788	11,662
Atlantic, total	180,116	150,840	330,956	334,915	2,007	62,203	124,427	186,630	325,397	3,061
New York, N. Y.	165,510	132,283	297,793	269,026	1,319	55,538	107,754	163,292	265,508	1,961
Boston, Mass.	8,080	4,224	12,304	7,251	93	3,730	4,149	7,879	7,967	162
Philadelphia, Pa.	100	173	273	370	119	7	30	37	193	206
Baltimore, Md.	45	40	85	69	139	37	9	46	154	161
Canadian Atlantic	2,952	3,844	6,796	10,427	33	839	2,772	3,611	9,412	128
Portland, Me.	9	14	23	11	3	.....	.....	.....	.....	23
New Bedford, Mass.	6	106	112	55	14	.....	.....	.....	.....	21
Providence, R. I.	1,659	2,188	3,847	1,839	21	659	272	931	465	23
Newport News, Va.	8	5	13	4	38	.....	.....	.....	5	26
Norfolk, Va.	11	15	26	420	102	.....	1	1	4	87
Savannah, Ga.	9	11	20	7	2	.....	4	4	20	30
Miami, Fla.	110	1,710	1,820	12,050	39	373	1,809	2,182	10,235	38
Key West, Fla.	1,593	6,206	7,799	33,350	46	1,020	7,625	8,645	31,426	56
Other Gulf	24	21	45	36	39	.....	2	2	8	139
Gulf of Mexico, total	1,700	4,833	6,533	10,240	360	589	2,932	3,521	9,998	730
Tampa, Fla.	520	1,566	2,086	175	26	8	314	322	64	91
Pensacola, Fla.	1	2	3	.....	11	.....	.....	.....	.....	18
Mobile, Ala.	34	68	102	204	12	3	21	24	57	39
New Orleans, La.	903	3,021	3,924	9,278	263	376	2,124	2,500	9,433	342
Galveston, Tex.	240	176	416	578	43	202	473	675	444	220
Other Gulf	2	.....	2	5	5	.....	.....	.....	.....	20
Pacific, total	4,410	13,952	18,362	15,230	644	5,863	14,308	20,171	14,746	518
San Francisco, Cal.	2,512	7,589	10,051	8,065	296	2,725	7,637	10,362	7,389	224
Portland, Oreg.	6	9	15	5	4	13	86	99	20	35
Seattle, Wash.	1,011	2,583	3,594	3,154	195	2,086	1,845	3,931	2,403	98
Canadian Pacific	203	3,112	3,315	1,499	72	465	2,518	2,983	1,180	34
Mexican-border seaports	678	709	1,387	2,507	77	574	2,222	2,796	3,754	127
Land border, total	148,588	28,371	176,959	10,612	16,644	3,924	32,008	35,932	11,510	7,331
Canadian border	81,982	13,438	95,420	9,176	14,686	1,614	22,735	24,349	11,109	4,024
Mexican border	66,606	14,933	81,539	1,436	1,958	2,310	9,273	11,583	401	3,307
Others, total	361	4,830	5,191	7,523	100	787	6,467	7,254	8,137	22
Alaska	34	132	166	47	32	8	1	9	.....	1
Hawaii	192	3,109	3,301	3,220	40	644	4,798	5,442	4,228	14
Porto Rico	135	1,589	1,724	4,256	28	135	1,668	1,803	3,909	7

TABLE II
NET INCREASE OR DECREASE OF POPULATION, BY ADMISSION AND DEPARTURE OF ALIENS, FISCAL YEAR ENDED JUNE 30, 1927, BY COUNTRIES

	1927						
	Aliens admitted			*Aliens departed*			*Increase (+) or decrease (−)*
Country of last or intended future permanent residence [a]	*Immigrant*	*Nonimmigrant*	*Total*	*Emigrant*	*Nonemigrant*	*Total*	
All countries	335,175	202,826	538,001	73,366	180,142	253,508	+ 284,493
Europe, total	168,368	39,096	207,464	55,402	38,837	94,239	+ 113,225
Albania	243	3	246	237	8	245	+ 1
Austria	1,016	548	1,564	468	330	798	+ 766
Belgium	764	579	1,343	482	484	966	+ 377
Bulgaria	222	73	295	130	20	150	+ 145
Czecho-Slovakia	3,540	345	3,885	2,276	543	2,819	+ 1,066
Danzig, Free City of	223	25	248	6	3	9	+ 239
Denmark	2,505	646	3,151	536	608	1,144	+ 2,007
Esthonia	139	27	166	14	13	27	+ 139
Finland	438	147	585	536	313	849	− 264
France, including Corsica	4,405	3,893	8,298	1,637	3,501	5,138	+ 3,160
Germany	48,513	5,877	54,390	4,748	5,777	10,525	+ 43,865
Great Britain and Northern Ireland:							
England	9,990	13,681	23,671	4,994	14,592	19,586	+ 4,085
Northern Ireland	491	134	625	165	119	284	+ 341
Scotland	12,611	2,347	14,958	1,441	1,579	3,020	+ 11,938
Wales	1,068	342	1,410	44	87	131	+ 1,279
Greece	2,089	239	2,328	3,130	259	3,389	− 1,061
Hungary	813	242	1,055	841	278	1,119	− 64
Irish Free State	28,054	754	28,808	1,049	806	1,855	+ 26,953
Italy, including Sicily and Sardinia	17,297	2,609	19,906	17,759	2,751	20,510	− 604
Latvia	403	31	434	21	10	31	+ 403
Lithuania	770	67	837	314	92	406	+ 431
Luxemburg	111	16	127	13	8	21	+ 106
Netherlands	1,733	1,092	2,825	456	1,127	1,583	+ 1,242

TABLE II—*Continued*

NET INCREASE OR DECREASE OF POPULATION, BY ADMISSION AND DEPARTURE OF ALIENS, FISCAL YEAR ENDED JUNE 30, 1927, BY COUNTRIES

	1927						
	Aliens admitted			*Aliens departed*			*Increase (+) or decrease (—)*
Countries of last or intended future permanent residence [a]	*Immigrant*	*Nonimmigrant*	*Total*	*Emigrant*	*Nonemigrant*	*Total*	
Norway	6,068	1,654	7,722	1,786	983	2,769	+ 4,953
Poland	9,211	339	9,550	2,650	470	3,120	+ 6,430
Portugal, including Azores, Cape Verde, and Madeira Islands	567	186	753	2,347	476	2,823	— 2,070
Rumania	1,270	219	1,489	1,248	233	1,481	+ 8
Russia	1,183	319	1,502	239	211	450	+ 1,052
Spain, including Canary and Balearic Islands	429	721	1,150	2,178	999	3,177	— 2,027
Sweden	8,287	865	9,152	1,115	1,008	2,123	+ 7,029
Switzerland	2,121	883	3,004	594	808	1,402	+ 1,602
Turkey in Europe	216	61	277	24	11	35	+ 242
Yugo-Slavia	1,190	102	1,292	1,911	308	2,219	— 927
Other Europe [b]	388	30	418	13	22	35	+ 383
Asia, total	3,669	7,171	10,840	6,007	5,779	11,786	— 946
Armenia	13	1	14	20	9	29	— 15
China	1,471	3,995	5,466	4,179	3,315	7,494	— 2,028
India	102	388	490	126	238	364	+ 126
Japan	723	2,312	3,035	1,205	1,932	3,137	— 102
Palestine	464	171	635	142	109	251	+ 384
Persia	33	19	52	33	20	53	— 1
Syria	590	100	690	185	65	250	+ 440
Turkey in Asia	60	16	76	74	24	98	— 22
Other Asia [c]	213	169	382	43	67	110	+ 272
America, total	161,872	151,057	312,929	11,303	130,851	142,154	+ 170,775
Canada	81,506	15,999	97,505	1,953	28,889	30,842	+ 66,663
Newfoundland	3,074	540	3,614	487	739	1,226	+ 2,388
Mexico	67,721	5,586	73,307	2,957	4,511	7,468	+ 65,839
Cuba	3,020	10,261	13,281	1,598	11,424	13,022	+ 259
Other West Indies	999	4,492	5,491	2,134	4,247	6,381	— 890
British Honduras	108	116	224	20	131	151	+ 73
Other Central America	1,663	2,323	3,986	701	2,148	2,849	+ 1,137
Brazil	1,089	518	1,607	209	540	749	+ 858
Other South America	2,688	3,584	6,272	1,244	4,494	5,738	+ 534
United States [d]	.....	107,616	107,616	....	73,728	73,728	+ 33,888
Other America [e]	4	22	26	....	.....	.....	+ 26
Others, total	1,266	5,502	6,768	654	4,675	5,329	+ 1,439
Egypt	228	97	325	28	66	94	+ 231
Other Africa	292	428	720	84	289	373	+ 347
Australia, including Papua, Tasmania, and appertaining islands	464	3,541	4,005	379	3,032	3,411	+ 594
New Zealand, including appertaining islands	248	1,219	1,467	129	1,144	1,273	+ 194
Other Pacific islands [f]	34	217	251	34	144	178	+ 73

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[a] Residence of a year or more is regarded as permanent residence.

[b] Comprises Andorra, Gibraltar, Iceland, Liechtenstein, Malta, Monaco, and San Marino.

[c] Includes Afghanistan, Arabia, Bhutan, Iraq (Mesopotamia), Muscat, Nepal, Siam, Siberia, and "Asia, not specified."

[d] "United States" under nonimmigrants covers aliens returning to this country to resume residence therein after a temporary stay abroad; and under nonemigrants covers aliens departing for a visit abroad with the intention of returning within one year to renew permanent residence in this country.

[e] Comprises Greenland and the islands of St. Pierre and Miquelon.

[f] Comprises Nauru, New Guinea, Samoa, Yap, and "Pacific islands, not specified."

TABLE III

NET INCREASE OR DECREASE OF POPULATION BY ADMISSION AND DEPARTURE OF ALIENS, FISCAL YEAR ENDED JUNE 30, 1927, BY RACE OR PEOPLE

	1927						
	Aliens admitted			*Aliens departed*			*Increase (+) or decrease (—)*
Race or people	*Immigrant*	*Nonimmigrant*	*Total*	*Emigrant*	*Nonemigrant*	*Total*	
Total	335,175	202,826	538,001	73,366	180,142	253,508	+ 284,493
African (black)	955	2,671	3,626	870	1,585	2,455	+ 1,171
Armenian	983	294	1,277	51	134	185	+ 1,092
Bohemian and Moravian (Czech)	2,406	2,254	4,660	1,724	1,578	3,302	+ 1,358
Bulgarian, Serbian, and Montenegrin	600	849	1,449	1,592	1,180	2,772	— 1,323
Chinese	1,051	7,254	8,305	4,117	5,764	9,881	— 1,576
Croatian and Slovenian	821	991	1,812	251	195	446	+ 1,366
Cuban	1,919	6,332	8,251	980	7,267	8,247	+ 4
Dalmatian, Bosnian, and Herzegovinian	69	184	253	380	627	1,007	— 754
Dutch and Flemish	3,125	3,780	6,905	1,005	3,639	4,644	+ 2,261
East Indian	51	167	218	83	103	186	+ 32
English	40,165	39,851	80,016	7,449	49,274	56,723	+ 23,293
Finnish	629	1,447	2,076	577	1,669	2,246	— 170
French	19,313	8,970	28,283	1,761	8,838	10,599	+ 17,684

TABLE III—*Continued*

NET INCREASE OR DECREASE OF POPULATION, BY ADMISSION AND DEPARTURE OF ALIENS, FISCAL YEAR ENDED JUNE 30, 1927, BY RACE OR PEOPLE

Race or people	*1927*						
	Aliens admitted			*Aliens departed*			*Increase (+) or decrease (−)*
	Immigrant	*Nonimmigrant*	*Total*	*Emigrant*	*Nonemigrant*	*Total*	
German	56,587	18,809	75,396	5,515	14,902	20,417	+ 54,979
Greek	2,557	3,456	6,013	3,140	1,491	4,631	+ 1,382
Hebrew	11,483	3,864	15,347	224	1,395	1,619	+ 13,728
Irish	44,726	6,910	51,636	1,432	5,732	7,164	+ 44,472
Italian (north)	2,637	5,549	8,186	2,209	3,463	5,672	+ 2,514
Italian (south)	15,892	20,334	36,226	15,627	12,499	28,126	+ 8,100
Japanese	660	6,517	7,177	1,148	10,315	11,463	− 4,286
Korean	47	43	90	52	71	123	− 33
Lithuanian	549	403	952	331	404	735	+ 217
Magyar	1,049	1,524	2,573	946	971	1,917	+ 656
Mexican	66,766	13,873	80,639	2,774	8,180	10,954	+ 69,685
Pacific Islander	8	11	19	7	20	27	− 8
Polish	4,249	1,947	6,196	2,725	2,448	5,173	+ 1,023
Portuguese	843	2,820	3,663	2,363	1,499	3,862	− 199
Rumanian	422	642	1,064	1,201	923	2,124	− 1,060
Russian	1,249	1,241	2,490	510	978	1,488	+ 1,002
Ruthenian (Russniak)	445	135	580	19	55	74	+ 506
Scandinavian (Norwegians, Danes, and Swedes)	19,235	11,272	30,507	3,678	10,446	14,124	+ 16,383
Scotch	25,544	11,503	37,047	1,930	8,144	10,074	+ 26,973
Slovak	1,017	505	1,522	693	540	1,233	+ 289
Spanish	1,065	7,738	8,803	2,781	5,094	7,875	+ 928
Spanish American	3,185	4,547	7,732	1,792	5,049	6,841	+ 891
Syrian	684	697	1,381	203	431	634	+ 747
Turkish	112	187	299	166	162	328	− 29
Welsh	1,300	779	2,079	65	298	363	+ 1,716
West Indian (except Cuban)	381	1,660	2,041	754	2,017	2,771	− 730
Other peoples	396	816	1,212	241	762	1,003	+ 209
SEX							
Male	194,163	127,279	321,442	51,536	111,569	163,105	+ 158,337
Female	141,012	75,547	216,559	21,830	68,573	90,403	+ 126,156
AGE							
Under 16 years	51,689	11,034	62,723	2,986	10,587	13,573	+ 49,150
16 to 21 years	77,636	12,150	89,786	3,300	10,610	13,910	+ 75,876
22 to 29 years	105,351	48,276	153,627	17,522	39,491	57,013	+ 96,614
30 to 37 years	49,292	50,445	99,737	20,655	52,266	72,921	+ 26,816
38 to 44 years	22,295	34,546	56,841	12,740	29,215	41,955	+ 14,886
45 years and over	28,912	46,375	75,287	16,163	37,973	54,136	+ 21,151

TABLE IV

ALIENS ADMITTED TO THE UNITED STATES UNDER THE IMMIGRATION ACT OF 1924, DURING THE FISCAL YEAR ENDED JUNE 30, 1927, BY CLASSES, AS SPECIFIED

Classes	*Fiscal year 1927*
Grand total admitted	538,001
Nonimmigrants, total	95,704
Government officials, their families, attendants, servants, and employees	5,683
Temporary visitors for:	
Business	22,515
Pleasure	37,993
In continuous transit through the United States	28,312
To carry on trade under existing treaty	1,201
Nonquota immigrants, total	284,227
Wives of United States citizens	10,084
Children of United States citizens	8,421
Residents of the United States returning from a visit abroad	95,910
Natives of Canada, Newfoundland, Mexico, Cuba, Haiti, Dominican Republic, Canal Zone, or an independent country of Central or South America	158,657
Their wives	889
Their children	189
Ministers of religious denominations	595
Wives of ministers	338
Children of ministers	721
Professors of colleges, academies, seminaries, or universities	138
Wives of professors	40
Children of professors	21
Students	1,838
Veterans of the World War	4,514
Wives of veterans	887
Children of veterans	980
Spanish subjects admitted to Porto Rico	10
Quota immigrants (charged to quota), total	158,070

TABLE V

ALIENS DEPORTED AFTER LANDING IN THE UNITED STATES DURING THE FISCAL YEAR ENDED JUNE 30, 1927, BY CAUSES

	Fiscal year 1927
Insanity, epilepsy	594
Other mental conditions	243
Loathsome or dangerous contagious disease	159
Other physical conditions	46
Likely to become a public charge	569
Professional beggars, vagrants, or paupers	2
Assisted aliens	35
Accompanying aliens	1
Under 16 years of age (unaccompanied by parent)	53
Unable to read (over 16 years of age)	708
Contract laborers	88
Criminals	953
Under narcotic act	54
Immoral classes	572
Had been deported within one year	182
Entered without inspection	524
Under Chinese exclusion act	141
Under percentum limit act of 1921 (excess quota)	833
Under section 17 of immigration act of 1924	77
Remained longer than permitted	192
Failure to maintain student status	17
Without proper visa under immigration act of 1924:	
At land border ports	5,464
At seaports	
All other causes	155
Total	11,662

IMPORTS. See articles on various countries.

IMPORTS, AGRICULTURE. See AGRICULTURE.

INCINERATION. See GARBAGE AND REFUSE DISPOSAL.

INCOME TAX. See TAXATION.

INDEPENDENT METHODIST CHURCH. See Methodists, Wesleyan.

INDIA. A dominion of Great Britain, consisting of the peninsula of Hindustan and the region to the north, and including, in addition to the territory directly governed by British officials, Indian states indirectly governed, that is to say, subject to British law. Capital, Delhi.

Area and Population. The total area, including the Indian states and agencies which are in political relations with the government, according to the census of 1921, was 1,805,332 square miles, of which 1,094,300 square miles were in the British provinces. The total population in 1921 was 318,942,480 as compared with 315,156,396 in 1911. The population of the British provinces in 1921 was 247,003,293 as compared with 243,933,178 in 1911. In 1923 the census commissioner for India estimated the population at about 319,000,000 or a gain of 1.2 per cent over 1911; average density, 177 to the square mile; maximum provincial density, 608 to the square mile in the province of Bengal. Over 90 per cent of the population were classed as rural, only 9½ per cent living in towns of 5000 or more.

The following table from the *Statesman's Year Book* for 1927 gives the area and population of all the divisions of India according to the census of 1921:

British Provinces	*Area in square miles 1921*	*Population in 1921*
Ajmer-Merwara	2,711	495,271
Andamans and Nicobars	3,143	27,086
Assam	53,015	7,606,230
Baluchistan	54,228	420,648
Bengal	76,843	46,695,536
Bihar and Orissa	83,161	34,002,189
Bihar	42,360	23,380,288
Orissa	13,736	4,968,873
Chota Nagpur	27,065	5,653,028
Bombay (Presidency)	123,621	19,348,219
Bombay	77,035	16,012,342
Sind	46,506	3,279,377
Aden	80	56,500
Burma	233,707	13,212,192
Central Provinces and Berar	99,876	13,912,760
Central Provinces	82,109	10,837,444
Berar	17,767	3,075,316
Coorg	1,582	163,838
Delhi	593	488,188
Madras	142,260	42,318,985
North-West Frontier Province	13,419	2,251,340
Punjab	99,846	20,685,024
United Provinces	106,295	45,375,787
Agra	82,137	33,209,145
Oudh	24,158	12,166,642
Total provinces	1,094,300	247,003,293

The following Indian States and agencies were in political relations with the Indian government at the time of the 1921 census:

State or Agency	*Area in square miles in 1921*	*Population in 1921*
Assam (Manipur) State	8,456	384,016
Baluchistan States	80,410	378,977
Baroda State	8,127	2,126,522
Bengal States	5,434	896,926
Bihar and Orissa States	28,648	3,959,669
Bombay States (including States in Western India Agency	63,453	7,409,429
Central India Agency	51,531	5,997,023
Central Provinces States	31,176	2,066,900
Gwalior State	26,357	3,186,075
Hyderabad State	82,698	12,471,770
Kashmir State	84,258	3,320,518
Madras States Agency	10,696	5,460,312
Mysore State	29,475	5,978,892
North-West Frontier Province (Agencies and Tribal areas)	25,500	2,825,136
Punjab States Agency	37,059	4,416,036
Rajputana Agency	128,987	9,844,384
Sikkim State	2,818	81,721
United Provinces States	5,949	1,134,881
Total States	711,032	71,939,187
Total India	1,805,332	318,942,480

Religion, etc. The enumeration of the population in 1921 was: Hindus, 216,734,586; Moslems, 68,735,233; Buddhists, 11,571,268; Animistic, 9,774,611; Christians, 4,754,064; Sikhs, 3,238,803; Jains, 1,178,596; Parsis, 101,778; Jews, 21,778. The preponderating languages are Hindu, Bengali, and Telugu. Cities of over 250,000, with their populations in 1921, are: Calcutta (with suburbs), 1,327,547; Bombay, 1,175,914; Madras, 526,911; Hyderabād, 404,187; Rangoon, 341,962; Delhi, 304,420; Lahore, 281,781; and Ahmedabād, 274,007.

Education. According to the latest available statistics there were in British India in 1924–25, 228,229 institutions of learning with 9,797,344 scholars. The Indian government's expenditures for education in 1924–25 amounted to $31,936,610, a sum representing less than $0.10 for each person of the population. In the United States the annual expenditure is $16.25 per capita for public education. Notwithstanding sincere and earnest effort, little real advancement has been made in the education of the masses, according to statistics of the Bureau of Education. Of the country's vast population it is stated that more than 90 per cent are illiterate.

Agriculture, etc. According to the U. S. Bureau of Foreign and Domestic Commerce, current prosperity in India depends almost entirely upon crop conditions and world price levels for such agricultural commodities as the country produces. India had been extremely fortunate during several years in enjoying an uninterrupted series of good crop years, but world price levels had not been so satisfactory. The principal difficulties had been the low consumption of raw materials in Great Britain, one of India's chief markets, and world overproduction of certain agricultural commodities, especially cotton. These factors resulted in low prices for many of India's export commodities, and despite a larger volume of export business, the financial returns were smaller than in former years.

Between two-thirds and nine-tenths of India's population is either directly or indirectly supported by agriculture. During 1925–26, of a total area of 667,610,000 acres, 225,846,000 were devoted to food and nonfood crops and 256,644,000 were harvested—two crops being obtained from part of the land—according to the Indian *Trade Journal*. Food crops consisted largely of rice, which accounted for 80,172,000 acres; wheat covered 23,979,000 acres; jowar, 20,617,000; bajra, 12,269,000; gram, 14,325,000; and barley, 6,610,000. The remainder of the food-crop acreage was made up of sugar and miscellaneous grains and pulses, such as maize and ragi.

Nonfood crops in 1925–26 accounted for 50,019,000 acres, of which 15,156,000 were planted to various seed oils. Among the crops classified as nonfood, cotton, with 18,186,000 acres, was the largest, followed by fodder crops with 8,932,-

000; ground nuts, 3,768,000; sesamum, 3,409,000; rape and mustard, 3,089,000; and jute, 2,924,000. The remaining nonfood acreage was devoted principally to indigo, opium, tea, coffee, linseed, coconut, castor seed, and tobacco.

In India, as in all eastern countries, the desire for land ownership is very strong. As the number of acres suitable for agriculture is smaller than the total population, the area of individual holdings is necessarily small, ranging from two to 100 acres in extent, depending upon the density of the population and fertility of the soil. Few large estates are found, and a large proportion of the smaller holdings are split up into several parcels through the native system of dividing property among children upon the death of parents. An individual holding of one acre is often divided into several parcels in widely separated locations, making it impracticable, if not impossible, to cultivate them to advantage or to make use of modern farm machinery.

The coöperative movement continued to advance in a highly satisfactory manner. The number of societies for all India in 1925–26 totaled 80,182, as compared with an average of 57,707 during the five years from 1920–21 to 1924–25 inclusive. In 1925–26 there were 60,787 agricultural societies in British India, with a membership of 2,023,318 as compared with 55,985, with a membership of 1,848,890, in the previous year. Agricultural societies in the Native States bring the total for the whole of India up to 70,733, with a membership of 2,321,959, as against 63,873, with a membership of 2,025,058, in the preceding year.

The 1926–27 yield of jute, one of India's principal money crops, was expected to reach the record figure of about 11,850,000 bales. More than half the crop is exported from India in the form of bags and cloth and the remainder is shipped in the raw. While the commodity enjoys a very wide market, with large shipments to the Orient, South America, and the United States, the bulk is consumed in Europe. The 1926–27 cotton yield was estimated at only about 80 per cent of normal, with an outturn of about 4,973,000 Indian bales as compared with a final figure of 6,250,000 bales for 1925–26. While quotations have been low for Indian cotton, in sympathy with the world market, the price has ruled higher than for American cotton. Indian cotton, furthermore, has been undersold even in its own domestic market, considerable American cotton having been purchased by Indian mills. A little more than half of the crop is consumed locally, while the remainder is exported in the raw to Europe and the Orient.

India is one of the world's leading wheat producers, with an average area during the last two years of about 30,000,000 acres sown to the crop. Exports of wheat from India have never been large, and during some years when the crop is short wheat must be imported. The 1926–27 yield was estimated at about 8,709,000 tons, or slightly more than during the preceding year. The bulk of the export goes to the United Kingdom, with smaller quantities to continental countries and near-by regions in Asia. Rice is one of the principal food crops of India and is therefore of great economic importance to the country. The crop during recent years has averaged between 29,000,000 and 30,000,000 tons, all except 2,500,000 tons of which is consumed locally. Practically all the export surplus originates in Burma, where farmers specialize in export grades. The 1926–27 crop was expected to reach 29,479,000 tons, or about 96 per cent of the 1925–26 crop. The estimates for all other principal crops, with the exception of indigo—expected to yield in 1926–27 only about 71 per cent of the 1925–26 outturn—were well up to the figures for the preceding year. The 1926 crop of tea was larger than the preceding year's and the price yield was satisfactory.

Notwithstanding the progress of modern irrigation in India during recent years, the well-being of the population directly supported by agriculture, which makes up about three-quarters of the total millions, still depends upon the success of the annual monsoon. There is probably no country in the world where the land is required to do so much for the support of its cultivators. Reports in the fall indicated that the 1927 monsoon would be a successful one.

Mineral resources are rich and varied and include gold, coal, petroleum, lead, mica, manganese, saltpetre, salt, tungsten ore, silver ore, and precious stones. The principal petroleum fields are in Burma and Assam.

The raising of livestock is of some importance, the animals raised including sheep, goats, donkeys, horses, mules, oxen, camels, and buffaloes. There is a large trade in skins and hides. The forests of India cover 249,504 square miles of which 103,789 are under the direct control of the State Forest Department. The chief industries are the tea industry, and the weaving of cotton cloth. India is finding it hard, however, to compete with Japan in the latter industry. Others are silk weaving, carpet weaving, metal working, and wood carving. About 12 per cent of the population are engaged in industry.

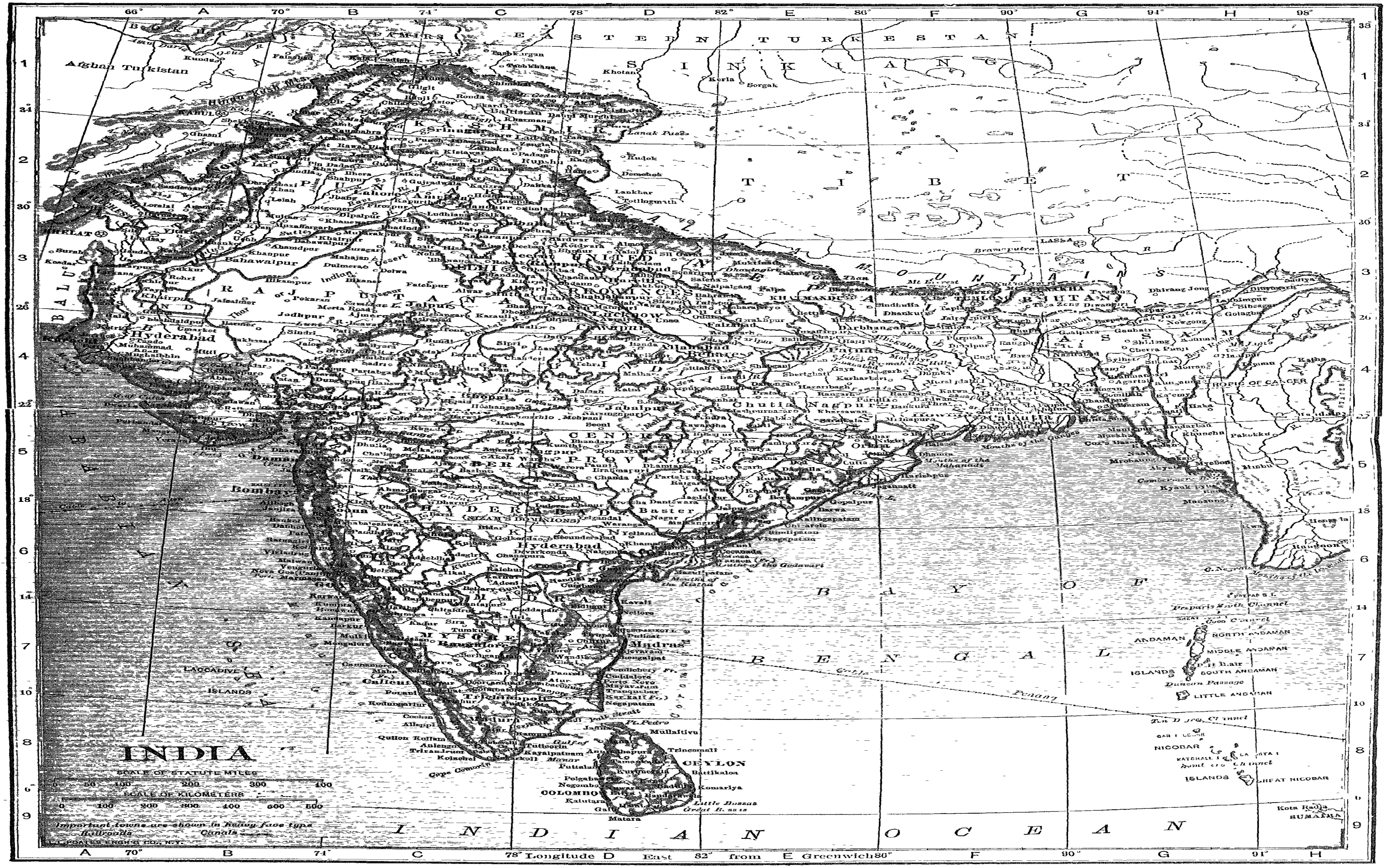
COMMERCE. Since 1918 India's import trade has been increasing steadily. It attained in 1926 the value of 2,340,000,000 rupees, the highest figure ever recorded for it and a gain of 730,000,000 rupees over 1913, the last pre-war year. The exports in 1926 were 3,868,121,842 rupees, as compared with 4,002,427,531 in 1925. The United Kingdom, the United States, Japan, Germany, Belgium, and Italy contributed most largely to India's increased imports, although gains were shown in receipts from practically every other country of origin. The following table affords a comparison of the shares of the principal competing countries in the value of imports into India, expressed in dollars, for the years 1925 and 1926:

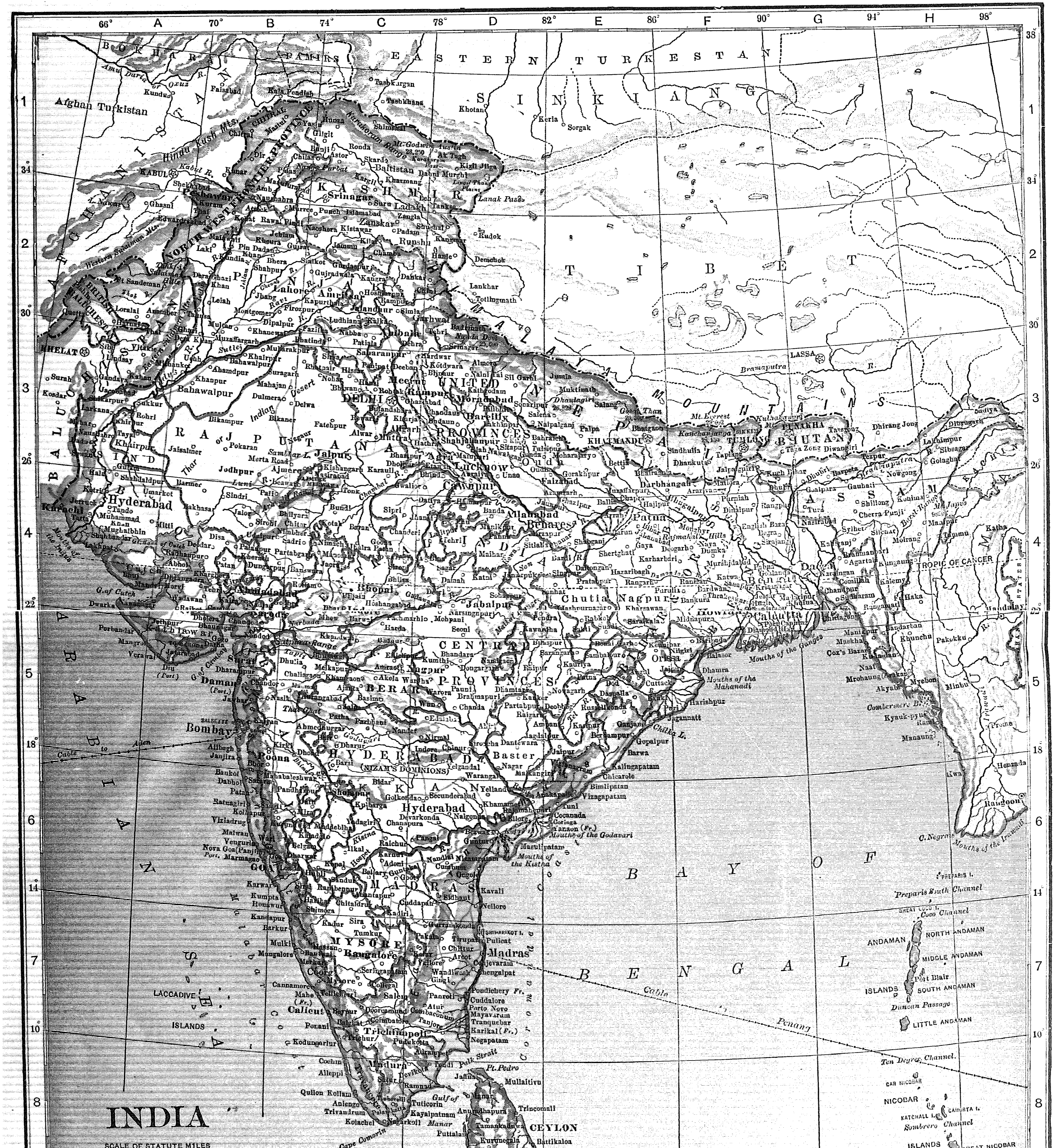
IMPORTS INTO INDIA BY COUNTRIES OF ORIGIN [a]

Countries of origin	*1925*	*1926*
United Kingdom	$425,984,720	$415,992,463
United States	49,893,272	61,860,425
Japan	64,019,729	60,648,263
Germany	48,175,870	59,168,414
Belgium	21,581,248	28,848,000
Italy	14,690,491	20,427,661

[a] The figures were converted from rupees at the following rates of exchange: 1925, $0.36; 1926, $0.36.

In 1926, for the first time since 1922, the imports into India from the United States exceeded in value those of any other country with the single exception of the United Kingdom. The increase over the preceding year amounted to almost $12,000,000. The following table shows


INDIA
SCALE OF STATUTE MILES
SCALE OF KILOMETERS
Important towns are shown in heavy-face type
Railroads
Canals
78° Longitude D East 82° from E Greenwich 86°
EASTERN TURKESTAN
SINKIANG
TIBET
HIMALAYA MOUNTAINS
Afghan Turkistan
KASHMIR
PUNJAB
RAJPUTANA
UNITED PROVINCES
CENTRAL PROVINCES
BERAR
HYDERABAD (NIZAM'S DOMINIONS)
MADRAS
MYSORE
NEPAL
BHUTAN
ASSAM
BALUCHISTAN
SIND
CEYLON
LASSA
Bombay
Hyderabad
Madras
Calcutta
Colombo
Delhi
Lucknow
Srinagar
Bangalore
Rangoon
Chutia Nagpur
Mt. Everest
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
LACCADIVE ISLANDS
ANDAMAN ISLANDS
NICOBAR ISLANDS
TROPIC OF CANCER


INDIA
SCALE OF STATUTE MILES
0 50 100 200 300 400
SCALE OF KILOMETERS
0 100 200 300 400 500 600
Important towns are shown in heavy face type
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L.L. POATES ENGR'G CO., N.Y.
78° Longitude D East 82° from E Greenwich 86°
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ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
LACCADIVE ISLANDS
ANDAMAN ISLANDS
NICOBAR ISLANDS
HIMALAYA MOUNTAINS
Delhi
Bombay
Calcutta
Madras
Karachi
Hyderabad
Lahore
Lucknow
Colombo
Lassa
Kabul
TROPIC OF CANCER

the leading imports into India from the United States during 1925 and 1926, in dollars:

IMPORTS INTO INDIA FROM THE UNITED STATES

Commodity	*1925*	*1926*
Apparel	$370,881	$433,886
Leather:		
Belting for machinery	228,944	309,847
Boots and shoes	445,359	430,118
Aniline dyes	672,011	624,488
Hardware (excluding cutlery and electroplated ware)	2,745,666	2,668,283
Electrical goods	736,439	1,188,721
Electrical machinery	624,355	734,199
Machinery and millwork	4,846,638	4,995,805
Spirits	(a)	(b)
Galvanized sheets	157,385	785,095
Tinned sheets	951,445	1,325,213
Kerosene oil	11,425,051	14,160,426
Lubricating oil	1,301,827	947,670
Provisions	1,120,299	1,571,983
Railway plant	512,390	556,500
Motor tires, pneumatic	718,542	880,678
Solid rubber tires	150,100	136,985
Cotton, raw	164,719	3,754,576
Cotton textiles, gray, unbleached	442,472	315,815
Tents of all descriptions	942,777	1,073,000
Motor cars	2,956,050	3,341,360

[a] 466,722 gallons.
[b] 513,778 gallons.

FINANCE. The budget estimates for India for 1927–28 called for an estimated revenue of 1,289,600,000 rupees and expenditure of 1,252,600,000 rupees. The revised estimates for 1926–27, according to the report of the finance member, would yield 1,298,000,000 rupees, instead of 1,304,000,000, a decrease of 6,548,000 rupees. Accordingly, the surplus of 531,000 rupees, which was anticipated in the original budget estimates, would be wiped out completely. The revised receipts from railways for 1926–27 showed a decrease of 26,253,000 rupees. The public debt of India on Mar. 31, 1927, stood at 9,755,400,000 rupees as compared with 9,690,400,000 rupees on Mar. 31, 1926. Of the total debt 5,231,400,000 rupees were contracted in India; the remainder was borrowed in England.

COMMUNICATIONS. The total number of vessels which entered and cleared in the foreign trade of India in 1925–26 was 7623 of 17,135,584 tons. Operating results for the Indian railways for the fiscal year ended Mar. 31, 1927, indicated that the investment ("capital at charge") in lines operated by the state amounted to approximately $1,497,620,160, and in state lines operated by companies or by Indian states amounted to approximately $1,014,103,160, and there was a grand total of investment in state-owned Indian railways of approximately $2,523,849,480, as compared with $2,430,831,960 in 1925–26. Net revenue of state-owned lines in 1926–27 amounted to $125,043,480 as against $127,036,440 in the preceding fiscal year. The per cent of net revenue to "capital at charge" in 1926–27 was 4.95 as compared with 5.23 in 1925–26. There was a total of $99,088,920 in capital charges against the net revenue in 1926–27 which gave the government a clear profit of 1.02 per cent as compared with 1.29 per cent in 1925–26.

Gross earnings from all railways, state and private, in 1926–27 amounted to $404,483,760 and operating expenses amounted to $250,922,880, resulting in an operating ratio of 62.04 per cent. There was a grand total of route mileage of 39,048.88, which was divided between the lines of different gauges as follows: 4 ft. 6 in., 19,367.44; 3 ft. 3⅜ in. (meter), 15,931.81; and 2 ft., 3749.63. There was at the end of the year under construction 2255.97 miles of line. There was a total of 604,371,800 passengers carried by all railways during 1926–27 as against 599,144,800 in the preceding year. Total passenger miles amounted to 20,366,250,000. The average passenger trip, including all classes, was 33.7 miles. The average rate per mile, varying from first class through second and intermediate to third class, was seven mills. There were 94,336,000 tons of freight carried. The average earning per ton mile was 1.37 cents. Total earnings from passenger traffic amounted to $137,124,280; from freight traffic $233,975,880. Passenger train miles in 1926–27 amounted to 74,967,000 as against 69,541,000 in the previous year. Total freight train miles amounted to 57,328,000 as against 57,411,000 in the previous year. Total train mileage including mixed and work trains amounted to 170,720,000 as against 162,258,000 in 1925–26.

The railway construction programme of India for the fiscal year 1927–28 was to involve a total expenditure of 146,660,000 rupees for commercial lines. The programme included 48 lines covering 1813 miles which were already in the process of construction and 51 new lines extending 2827 miles. It was hoped that 900 miles of new construction might be opened in 1927–28.

GOVERNMENT. Executive and legislative power rests with the governor-general in council. The council consists of no fixed number of members, but at least three of them must have had ten years' service in India and one must be a lawyer of at least ten years' standing. The administration of India in England is under a Secretary of State for India, aided by a council appointed by him, of which at least half the members must have been residents of India for 10 years and must not have left India more than five years previous to their appointment. A high commissioner for India in the United Kingdom acts as agent of the governor-general-in-council, and conducts business assigned by the Secretary of State. There is also in India a legislature consisting of the governor-general and two chambers, namely the council of state and the legislative assembly, both constituted under the Montagu-Chelmsford programme. (See preceding YEAR BOOKS.) The viceroy and governor-general during 1927 was Baron Irwin of Kirby Underdale (appointed in April, 1926). The Secretary of State for India was the Earl of Birkenhead (appointed November, 1924). The High Commissioner for India in the United Kingdom was Sir A. C. Chatterjee.

HISTORY. For the second year in succession India passed a comparatively quiet period during 1927, although the usual dissensions between the Hindus and Moslems kept coming to the fore. The Swarajist movement was scarcely noticed in the press, and in most quarters it was felt that, with the voluntary retirement of Ghandi, the movement was doomed to death from lack of leadership. By the end of the year the Indians seemed to feel that whatever measure of self-government they obtained, it must be handed down to them by the British government. The British government continued to express its sympathy for Indian constitutional aspirations, both officially and unofficially. Lord Irwin, the Viceroy, in his address to the Legislative Assembly shortly after the beginning of the year, made this general theme the keynote of his talk. In a later talk to the same body (August 29) the Viceroy stressed the importance of the Hindus and Mohammedans living in harmony, particularly if they wished to see India get a greater measure of home rule. He stated at that time that almost 300 people had been killed and 2500 wounded as a result of the riots and clashes in the various towns and villages because of the religious differences. This question arose time and again in the course of the debates during the autumn session but nothing definite was done, and the government virtually admitted that nothing could be done to cure the ever increasing evil.

Early in November the British government announced that it had determined to appoint a commission to investigate the workings of the Montagu-Chelmsford plan of local self-government in India for the express purpose of finding out whether that plan had met with sufficient success to increase the amount of autonomy that the possession enjoyed. The appointment of this commission came about two years earlier than the original act of Parliament provided (see YEAR BOOK for 1920) and it was stated in the press that the reason for this earlier date was the fact that the strained relations between he Hindus and the Mohammedans was the chief reason for the present investigation rather than one in 1930.

The chairman of the commission was Sir John Simon, who gave up a very lucrative legal practice in London to serve on the commission. Other members of the group were Lord Burnham, proprietor of the *London Daily Telegraph*, Stephen Walsh, Minister of War in the Macdonald Labor Cabinet, and the following members of the Conservative party: Col. G. R. Lane-Fox, Minister of Mines in the Baldwin government, Lord Strathcona, Major Cadogan, and Maj. C. R. Atlee. Severe criticism was voiced throughout Nationalist India because no Indian of any shade of political opinion was placed upon the commission. The British government explained this with a clever statement to the effect that Indians, naturally desirous of independence for their country, could not make an impartial survey of the conditions in India. Provisions were made for the hearing of Indian committees before both houses of Parliament before any action was taken on the report of the Simon Commission.

Near the very end of the year a meeting of the Indian National Congress was held in Madras. This organization, although unofficial, represented every part of Indian life and in late years had come to be looked upon as the representative of real feelings throughout the country. It bitterly attacked the Simon Commission and urged upon the 5000 delegates present that its work be hampered by means of the boycott, a familiar weapon of the Indian Nationalists. It also stated emphatically that the one aim of the Indian people was complete independence. Considerable importance was placed upon the question of Hindu and Mohammedan solidarity, speaker after speaker stating that the independence idea could only be consummated by presenting a united front to the British government.

INDIANA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,930,390. The estimated population on July 1, 1927, was 3,150,000. The capital is Indianapolis.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu*	*Value*
Corn	1927	4,205,000	132,458,000	$90,071,000
	1926	4,672,000	177,536,000	88,768,000
Wheat, winter	1927	1,782,000	27,621,000	34,250,000
	1926	1,697,000	33,940,000	42,086,000
Wheat, spring	1927	8,000	128,000	156,000
	1926	6,000	108,000	180,000
Hay	1927	2,078,000	3,066,000 [a]	31,845,000
	1926	1,962,000	2,501,000 [a]	34,906,000
Oats	1927	1,948,000	48,700,000	20,941,000
	1926	2,050,000	61,500,000	21,525,000
Potatoes	1927	53,000	5,035,000	5,538,000
	1926	48,000	3,840,000	6,336,000
Tobacco	1927	8,400	6,384,000 [b]	1,085,000
	1926	14,700	12,995,000 [b]	1,261,000
Rye	1927	119,000	1,618,000	1,424,000
	1926	145,000	2,102,000	1,787,000

[a] tons, [b] pounds.

MINERAL PRODUCTION. The total value of the mineral production of the State in 1925 was $111,833,732, with duplications eliminated; in 1924, $112,290,075. The chief products were pig iron, coal, coke, clay products and stone. Coal produced in 1926 totaled, in quantity, 23,186,006 net tons and in 1925 21,224,966 tons; in value, $45,889,000 in 1926 and in 1925 $42,884,000. Coke production was 5,990,344 short tons in 1926, from by-product ovens entirely, as against 5,141,940 tons in 1925; in value, $44,143,059 for 1926 and for 1925, $36,635,104. Production of pig iron rose to 3,670,478 long tons for 1926, from 3,350,747 tons for 1925; valued at $69,292,329 for 1926 and $64,807,525 for 1925. Stone production for 1925, the latest year of available statistics, was in value $18,140,974; for 1924 it was $17,269,407. Quantities produced were 4,455,310 short tons in 1925 and 3,824,440 tons in 1924. Clay products attained for 1925 a total value of $18,037,932 and for 1924 $16,368,139. There were produced in 1926 793,000 barrels of petroleum, and in 1925, 829,000 barrels; having a value of $1,700,000 for 1926 and for 1925 of $1,615,000.

FINANCE. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $24,747,324; their rate per capita was $7.94. They included $5,686,314 apportioned for education. Totals not included above, of $145,431 for interest payments and of $11,188,968 for permanent improvement outlays, brought the aggregate of State expenditures to $36,081,663. Of this, $14,467,837 was for highways; $5,768,179 being for maintenance and $8,699,658 for construction. Interdepartmental payments formed $154,651 of State expenditure.

Revenue receipts were $42,294,392; or per capita, $13.57. Of their total, property and special taxes yielded 38 per cent, attaining a rate of $5.16 per capita. Earnings of departments and compensation paid the State for officials' services supplied 9.1 per cent of revenue; 36.9 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles and from a tax on gasoline sales.

Net State indebtness on Sept. 30, 1926, was $1,689,000, or $0.54 per capita. Property subject to ad valorem taxation had a total valuation of $5,310,571,395. State taxes levied were $12,214,314, or $3.92 per capita.

TRANSPORTATION. The number of miles of railroad line in the State on Jan. 1, 1927, was 7,187.15. There were constructed in 1927 according to the *Railway Age* 0.18 mile of first and 5.80 miles of second track.

EDUCATION. The Legislature enacted in 1927 a State-wide teachers' tenure measure, affecting not only rural and urban teachers but also superintendents, supervisors and principals. The school population of the State in the scholastic year 1926–1927 was given as 843,713. There were enrolled in the public schools 701,222 pupils, of whom 522,831 were in common schools and 124,449 in high schools. The total expended on education was $73,272,468; of this $51,995,330 formed the aggregate of current expenditures. The salaries of teachers averaged, for kindergarten, $1409 (city) and $1016 (town); elementary grades, $1418 (city), $1085 (town); and $957 (township); junior high school, $1527 (city), $1391 (town) and $1278 (township); high school, $1828 (city), $1440 (town) and $1375 (township).

CHARITIES AND CORRECTIONS. The Board of State Charities, consisting of six appointed unpaid members, with the Governor as ex-officio member and president, exercised supervisory duties over the State charitable and penal insitutions. It reported the inmates as follows: In the Central State Hospital, Indianapolis, on June 30, 1926, 1699; in the Logansport State Hospital, 1268; Richmond State Hospital, 1091; Evansville State Hospital, 826; Madison State Hospital, 1393; School for Feeble Minded Youth, Fort Wayne, 1551; Farm Colony for Feeble Minded, Butlerville, 278; Village for Epileptics, Newcastle, 648; Soldiers' Home, Lafayette, 356; Soldiers' and Sailors' Orphans' Home, Knightstown, 255; State Sanatorium (tuberculosis) Rockville, 164; Indiana University Hospitals, Indianapolis, 244; State School for Deaf, Indianapolis, 371; School for the Blind, Indianapolis, 120; State Prison, Michigan City, 1847; Reformatory, Pendleton, 1963; State Farm (misdemeanants), Putnamville, 1314; Women's Prison, Indianapolis, 190; Girls' School, Clermont, 317; Boys' School, Plainfield, 469.

LEGISLATION. The General Assembly convened in January and adjourned March 7. It provided appropriations of a total of $49,421,350 for the State departments' expenditures in the ensuing two years. The State election law was altered by the passage of two measures, one repealing the requirement calling for the registration of citizens as a prerequisite to voting in primary or in general elections. The provision enabling absentees from the State to vote was repealed. A so-called farmers' relief amendment to the State tax law, which was enacted, directed a reassessment of real estate in 1928 and every fourth year thereafter; required assessment of property at "true cash value"; gave assessed property owners right of appeal from assessing boards to the courts, without intervention of a jury. The crime of voluntary manslaughter was redefined by statute, it being no longer required that killing in order to come under this category must be committed in a sudden heat of passion; and the penalty for this crime, as for involuntary manslaughter, assault and battery and certain other offenses, was reduced, as to minimum, to a period of one year of prison. It was rendered necessary that a person confined as criminally insane, on the other hand, must serve for two years before applying for discharge as having recovered sanity. The same statute gave judges the power, in cases where a defendant was asserted to have been insane at the time of his criminal act, to appoint disinterested physicians to testify on the point of sanity, their testimony being subject to cross examination but not giving warrant for the introduction of testimony in rebuttal.

The State Board of Pardons was abolished by another act, and in its place was created another board of ex officio members, these being the trustees of State penal institutions. It was made a felony to have a machine gun or bomb. The superintendent of any State or county institution was empowered to perform on any insane, feeble minded or epileptic person in his care an operation for the sexual sterilization of such person, provided that the patient had due opportunity of prior appeal. A resolution for submission to the voters was passed, to amend the constitution so as to permit the General Assembly to levy an income tax. Another proposed amendment, to empower the Legislature to fix the qualifications of lawyers, was sent before the voters. A change in the motor traffic law rendered it unlawful to drive at a speed "less than reasonable." It was enacted that in communities adopting government by a city manager, the change to this form should take place at the expiration of the terms of the elected officers then holding office. An aeronautic law was passed limiting the rights of flight and of landing in various respects. A teachers' tenure act prohibited the removal of teachers save after hearing on charges. A bill for the regulation of public utilities failed of passage.

Disregarding the self-denying principle applying to salary legislation, the Legislature passed a measure increasing its pay from $6 a day, for the current session, to $10. Vetoed by the Governor, this measure was repassed. The increase was contested as unconstitutional, but was sustained, April 19, by a bare majority of the State Supreme Court, three members upholding it and two dissenting. Judge Clarence W. Dearth of the Delaware County Circuit Court was tried by the State Senate on impeachment charges, and was acquitted, the heaviest vote on a count against him being 32 to 17, and lacking of a two-thirds adverse majority. Judge Dearth was accused of arbitrary acts against George R. Dale, editor of the Muncie *Post-Democrat*, whose columns had frequently attacked him.

POLITICAL AND OTHER EVENTS. Criminal proceedings were undertaken against both the Governor of the State and the Mayor of Indianapolis, in the crusade aganist political corruption continued from the year preceding. Mayor John L. Duvall of Indianapolis came first under indictment. After the winter term of the Marion County grand jury had considered his case for some time, it was alleged that effort had been made to bribe a member of that body. County Prosecuting Attorney Remy moved the discharge of the grand jury, and Judge Collins, after first declining this motion, later, May 6, granted it and directed the county attorney to bring criminal complaints by affidavit. Under this exceptional procedure, Mayor Duvall was charged, among other matters, with making a corrupt bargain with a local politician in the 1925 campaign, and with him was accused City Controller Buser, his brother-in-law. Duvall was found guilty by a jury in criminal court September 22, and was sentenced to a fine of $1000 and 30 days of prison. He retained his office for a month, finally resigning October 27, after appointing his wife controller, with the apparent intention of thus insuring the selection of his successor. As Controller Mrs. Duvall was contended to have succeeded to the Mayor's chair. She in turn named a Controller and resigned, in order that her appointee might become Mayor, and, the City Council refusing to concede her appointee's accession, appointed an acting Mayor, Claude E. Negley. Myers, the defeated Democratic candidate of 1925, likewise claimed the office. Judge Milner in the Superior Court decided in favor of Negley, to serve until November 8, when the City Council should select a successor to serve out the full unexpired term. L. Ert Slack, a Democrat and former United States district attorney, was then accordingly chosen.

Governor Jackson, who had declared in his January message to the State Legislature that there was "not a scintilla of evidence" in charges made by Thomas H. Adams of the Vincennes *Commercial* and other accusers of State officials, was indicted September 30. A Marion County grand jury, subsequent to that action, which was discharged in the Duvall proceedings, found the indictment on a charge that he had violated the corrupt practices act by offering his predecessor, Governor McCray, in 1925, $10,000 to nominate one J. E. MacDonald prosecutor in Marion County. Jackson was Secretary of State at the time. With him were indicted his law partner, Robert I. Marsh, and George V. Coffin, the Republican county chairman of Marion County. Oscar F. Montgomery was appointed a special judge to try the case.

Efforts to obtain information of former political irregularities in the State from the imprisoned politician D. C. Stephenson were made by a Marion County grand jury. It reported on December 31 that certain of the former associates of Stephenson had caused witnesses to leave the State. The jurors recommended the cessation of grand jury investigation because criminal liability for acts of corruption had ceased by limitation.

Plans for a bridge over the Ohio River at Evansville, prepared by the State Highway Commission, were approved by the Federal War Department in October. The proposed bridge was to form part of State Highway 41, running south through the State from the direction of Chicago. At Gary in September occurred a strike of white high school pupils, which ended in the taking of steps to segregate negro pupils in a small temporary building, a proceeding against which negroes, as forming some 15 per cent of the population, threatened legal measures. The State bought, May 1, 2000 acres of dune land on the Lake Michigan shore, in Porter County, for park purposes. Indianapolis at a special election June 21 voted to adopt government by commission and manager, the change to take effect Jan. 1, 1930. There was formed in October under the Indianapolis administration a division of smoke abatement, under a combustion engineer charged with watching and abating smoke production in furnaces. Judge Deahl of the circuit court rendered a decision at the end of December denying the power of the State Tax Board to review and revise city tax levies.

OFFICERS. Governor, Ed Jackson; Lieutenant-Governor, F. H. Van Orman; Secretary of State, F. E. Schortemeier; Treasurer, Mrs. Grace B. Urbahns; Auditor, L. S. Bowman; Attorney-General, A. L. Gilliom; Superintendent of Public Instruction, Roy P. Wisehart.

JUDICIARY. Supreme Court: Julius C. Travis, David A. Meyers, Clarence R. Martin, B. M. Willoughby, and Willard B. Gemmill.

INDIANA, UNIVERSITY OF. A coeducational institution of higher education at Bloomington, Ind.; founded in 1820. For the first semester of the academic year 1927–28 the registration aggregated 4166 students, of whom 2501 were men and 1665 were women. These were distributed as follows: graduate school, 204; arts and sciences, 2468; law, 96; commerce and finance, 171; music, 87; education, 26; medicine, 419; dentistry, 307; nurses' training, 173; social service, 46. The faculty had 298 members. The endowment funds amounted to $774,778.67, and the total income for the year, from State and private sources, was $2,600,000. An additional appropriation of $100,000 was made by the legislature for equipping the new wing of the library which had been completed at a cost of $225,000 in 1926. The library contained 187,000 volumes. In 1927 the legislature appropriated a mill tax that was expected to yield at least $350,000 per year, for ten years, to be used exclusively for the construction of new buildings and the purchase of land. President, William Lowe Bryan, Ph.D.

INDIANS. The total Indian population of the United States, exclusive of Alaska, as of June 30, 1927, was 354,940, according to the annual report of the Secretary of the Interior. This number was distributed among 193 tribes, speaking 58 languages; there were 200 reservations in 26 different states, occupying a territory as large as New England and New York combined, under the supervision of 106 superintendents; there were 202 Indian schools with 700 teachers; and 96 hospitals with 178 physicians and 146 nurses.

The Secretary's report emphasized the fact that the Indian Service had not kept pace with progress elsewhere along health, educational, industrial and social lines, due to financial neglect of the Service in past years and despite the fact that the appropriations, particularly for medical and health activities, had been increased since 1923. One of the principal difficulties encountered was in the very high turnover in the field force of physicians, nurses and teachers, which must be considered as an indication of unsatisfactory working conditions for the personnel, the principal cause being the failure to provide adequate salaries, modern living quarters for the workers, and a sufficiently large staff of workers.

HEALTH. Under the direction of the Bureau of Indian Affairs, district medical directors were able to establish closer relations with State and local health authorities. At the same time some increase was made in salaries of the physicians of the two lower grades and new recruits were obtained to fill vacancies, although vacancies still existed due to inadequate salaries. Progress was made in controlling trachoma and tuberculosis, the two diseases against which the greatest efforts had been directed. A number of schools, notably that at Fort Defiance, Ariz., and the Tohatchi School in New Mexico, were set aside for the reception of children suffering from trachoma; and the boarding school at Zuñi, New Mexico, was converted into a sanatorium school for children with incipient tuberculosis. The hospitals at Fort Peck and Blackfeet Agencies in Montana and at Klamath Agency in Oregon were devoted to the treatment of tubercular Indians. Several of the tubercular sanatoria of the Indian service during the year were full to capacity, due to the efforts of health education among the children and adults on the reservations. Changes were made in the nursing personnel to improve conditions and attract a high type of nurse to the Indian Service, and the organization and quality of the public health nursing work showed improvement.

EDUCATION. The platoon system of school organization, providing a three-quarter's day of class instruction and one-quarter day of institutional detail (work) was introduced into eight schools only during the year, due to lack of funds; the Service continued to extend its policy of having all-day classes for all pupils of the three lower grades and eventually for all six elementary grades, but many schools still lacked enough teachers to carry out this programme even in the first three grades. The annual report shows that of a total of 75,843 eligible Indian school population, 25,622 were enrolled in government schools, and 34,124 in public schools, and 7321 in boarding and day schools, leaving a total of 8776 eligibles not in school.

The Indian Service continued to extend its programme of organized home making by giving such instruction in all schools having junior and senior high grades, in a large number of elementary boarding schools and in two day schools, for the purpose of improving living standards in the Indian homes; teachers were encouraged to devote part of their vacation time to visiting Indian homes in order better to correlate their instruction with the needs of local groups of Indians; and Indian girls were given experience in good homes where they could secure training to enable them to become better home makers. The annual appropriation of $225 per student, for the maintenance and operation of Indian schools, including lodging, clothing, subsistence, academic and vocational training, and administration expenses, continued to be so inadequate that instruction, and especially vocational training, was neglected, and Indian children had to devote much of their time to other details which interfered with the pursuit of their studies.

INDUSTRIAL PROGRAMME. The policy of the Bureau of Indian Affairs was to encourage self-support instead of mendicancy, and to this end practically all of the Indians had been given individual allotments of land and urged to establish homes thereon. In carrying out this programme it was the policy of the government to make appropriations to assist the Indians in purchasing farm machinery, livestock and seeds, building material, etc., on a five-year payment plan, the appropriation for 1927 being $175,000, practically all of which was authorized for expenditure. The Indians in North and South Dakota, Montana, and Wyoming were encouraged to go into sheep raising under the reimbursable plan and superintendents of various agencies arranged their five-year programme to that end. It was found that the agricultural implements purchased by the Indians of the Salt River Agency, in Arizona, had been of great assistance to them, for otherwise they would have been unable to provide themselves with machinery; the Mission Agency, California, reported that Indians of the Morongo Reservation had received large incomes from their apricots; and the Indians at the Northern Pueblos Agency, New Mexico, reported a large yield of alfalfa seed and hay, from seed purchased in 1924 under the reimbursable plan.

Due to improved conditions in the livestock market during the year, Indians who were engaged in the industry received good returns and showed a greater interest than formerly. Another phase of the Bureau's industrial programme was the work carried on among Indian boys and girls in the Standard 4-H Club programmes, with a total registration on all reservations of 5500 and an estimated value of $43,752 for products during the year, 153 Indian children winning county prizes, 42 State prizes, and three free trips to the national congress in Chicago. It was estimated that this work among the children, in addition to directly benefiting them, had brought about greater industrial activity among adults. About 375 boys and girls graduated from government schools for Indians during 1927, the government to some extent acting as an employment agency for its students.

LAW AND ORDER. Since the Federal courts have jurisdiction on Indian reservations of only eight of the major Indian crimes enumerated in the United States Criminal Code, and since the State courts have no jurisdiction, many misdemeanors and felonies are left to the reservation courts of Indian offenses, which are not able to deal with conditions adequately. This situation reveals the necessity of extending the laws so as to bring the violation of laws within the jurisdiction of Federal and State courts. The problem of suppressing traffic in intoxicating liquors among the Indians has been a serious one and progress of government plans has been seriously retarded in all phases of Indian civilization by lack of funds for protecting the Indians from intoxicants. Further legislation is needed to require observance of State marriage and divorce laws among the Indians, in order to do away completely with adherence to "Indian custom" in marriage and divorce.

INDIAN ALLOTMENTS. Tribal Indian allotments totaling 2739 were received and disposed of during the year; while 5008 trust patents were issued with an aggregate acreage of 384,310.40 acres; 1121 patents for portions of allotments designated as homesteads of allottees, containing 217,248.20 acres were issued, and 1400 patents conveying title to Indians or their heirs to 174,048.79 acres. These lands had previously been held in trust by the government. See ANTHROPOLOGY.

INDO-CHINA, also known as FARTHER INDIA. The southeastern peninsula of Asia including the following divisions: Burma, politically attached to British India; Siam, a self-governing monarchy; French Indo-China, comprising Cambodia, Annam, Cochin-China, Laos, and Tongking; the Federated Malay States, a

British protectorate; the Straits Settlements, a British colony; and the Malay States of Johore, Kedah, Kelantan, Perlis, and Trenganu. See the articles on Burma, French Indo-China, Siam, and the other principal states mentioned.

INDUSTRIAL ACCIDENTS. See Child Labor; Women in Industry.

INFANTILE PARALYSIS. According to the daily press (*New York World*, Sept. 26, 1927) Dr. W. L. Aycock, authority on infantile paralysis and head of the Harvard Infantile Paralysis Commission, denied that the incidence of the disease during the late summer and early autumn amounted to an epidemic, as shown by the fact that the number of cases thus far recorded for Massachusetts was but one-fourth that attained in 1916, which fixed a standard for epidemic incidence. Although the causal microörganism has not yet been isolated it would still be possible to prepare an anti-serum were it not for the fact that, with the exception of the monkey tribe, all animals are apparently immune to the disease. The ape is not a suitable animal to furnish a serum, and even if he were his death rate from the disease is so high that such a serum would be quite out of the question. The chances for crippling and death from motor vehicles are far greater than from infantile paralysis, he states in concluding.

From the London letter to the *Journal of the American Medical Association* for Jan. 8, 1927, it appeared that nearly a thousand cases of infantile paralysis were recorded in England during the summer and autumn of 1926 and that quarantine, closure of schools, boiling the milk supply and special ventilation in barracks and other dormitories were all practiced or recommended by the health authorities.

INFANT MORTALITY. See Child Welfare; Maternity Protection.

INFANTRY. See Military Progress.

INGERSOLL, George Pratt. American lawyer and diplomat, died at Stamford, Conn., February 23. He was born at New Haven, Conn., Apr. 24, 1861, and graduated at Trinity College, Hartford, Conn., in 1883. He received his law degree from Yale in 1885. He practiced at Stamford, Conn., and New York City from 1885 to 1915, in the latter year going to Siam as United States minister. He had been United States Commissioner for Connecticut, member of the Connecticut State Board of Health and a Democratic nominee for Congress. He was a delegate to the International Peace Conference held in Washington, D. C., in 1910. He wrote: *The Measure of Success; Our Connecticut Heritage*, and *Diplomatic Life in Siam.*

INHERITANCE TAXES. See Taxation.

INJUNCTIONS in Industrial Disputes. See Labor; Labor, American Federation of; Strikes and Lockouts; Trade-Unions.

INORGANIC CHEMISTRY. See Chemistry, *Inorganic Chemistry*.

INSECTICIDES. See Entomology, Economic.

INSECTS. See Entomology, Economic; Zoology.

INSTITUTE OF INTERNATIONAL LAW. See International Law.

INSTITUTE OF POLITICS. See Politics, Institute of.

INSULIN. This active principle of the pancreas which had been isolated in pure form by Professor Abel of Johns Hopkins, had proved itself, through its ability to make good certain deficiencies in the body, of much wider sphere of therapeutic activity than was at first believed, when it was accepted as a relative curative agent of diabetes—to the extent of causing disappearance of all symptoms and holding the disease indefinitely in check. In theory it should have great activity in extensive affections of the liver accompanied by insufficiency of this organ, and tests in a variety of common and rare diseases of the latter are giving results often striking. Equally important is the drug in constitutional leanness and leanness due to underfeeding, in which conditions there is an insufficient action of the islets of the pancreas. In patients of this type an injection of insulin into a vein causes extreme hunger with craving for carbohydrate foods and rapid taking on of weight. (See Schellong and Hufschmid in *Klinische Wochenschrift* for Oct. 1, 1927.) The same drug was being tested in various other affections with promise, and one of the paradoxical results of the external application was seen in the healing of obstinate ulcers, such as varicose ulcers of the leg.

INSURANCE. The insurance business generally prospered in 1927. Not in every branch were the results of the year's operations satisfactory, but in most branches they were fairly so and in a few they left little to be asked. A few classes were still suffering from inadequate rates, and there were signs of still more trouble in this direction. A number of companies were organized during the year, and it was notable that the stock of several of these sold at a much higher premium than had been customary in the past. Many old companies increased their capital, in some instances adding materially to their surplus, while several important additions to capital were made by stock dividends. The advance in market price of securities owned by insurance companies resulted in a large increase in their assets, but, as this was largely due to stock market conditions, a number of companies at the end of the year set up special reserves to cover depreciation in security values, as this is likely to come.

One unusual development of the year was the remarkable rise in the prices of insurance company stocks. A few years ago insurance stocks were traded in only to a very limited degree and but few brokers handled them. During the past few years, however, they have become much more popular with investors and in the last few months of 1927 the demand for them raised the prices to levels which had never been reached before. In vain did presidents of companies warn the public that the prices were too high; they continued to advance almost to the end of the year, when there was a slight reaction. No satisfactory explanation of this great advance was offered. It was said that insurance stocks were advancing with the other classes of securities, that the public was now valuing them upon the earnings rather than upon book values, and that the very valuable good will which companies have built up was being reflected in the prices of their stocks. There was probably some merit in each of these explanations. Officers of insurance companies generally did not believe that the excessive prices would continue.

Fire Insurance. The fire insurance companies as a class were believed to have had a slightly smaller premium income than in 1926. Many were known to have suffered a reduction of several per cent, while some others made a slight gain. Any reduction in premium income tends to increase the expense ratio, and, in the absence of exact figures, which would be available only later in the year, a slight advance in the general expense ratio was expected. The fire losses, however, showed a remarkable reduction—at least $70,000,000 for the United States and Canada. This enabled the companies as a class to make an underwriting profit, the first in several years.

The reduction in fire losses was due to a number of causes. Moral hazard was less in evidence than in previous years. The more cautious underwriting policy which many companies had adopted made it difficult for certain classes of risks to get enough insurance and made necessary greater care to avoid fire. The great building activity since 1920 has resulted in the demolition of many old buildings of poor construction in the congested districts of large cities and the erection of fire-resistive structures on their sites. Laws for the punishment of arson had been made more severe in a number of states. The police departments of many cities were showing greater interest in running down "fire bugs" than ever before. Great impetus was given to the fire prevention movement by the Chamber of Commerce of the United States, under whose auspices the National Fire Waste Council had secured the active coöperation of local chambers of commerce throughout the country in attacking the fire waste. There are good grounds for hope that these various agencies will continue to be effective.

The Eastern Underwriters' Association, organized, in 1926 by most of the fire insurance companies operating in the Eastern States, brought about a number of improvements in the conduct of the business in this territory during its first year, although its accomplishments fell short of what had been hoped for.

The fire insurance companies met with serious trouble growing out of State laws regulating rates. Late in 1926 the Supreme Court of Missouri sustained the order of the Superintendent of Insurance of that State, issued in 1922, that rates be reduced 10 per cent. In 1927 the Supreme Court of Kansas sustained a rate reduction order in that State. The Missouri decision was taken before the Supreme Court of the United States in 1927, and a decision was expected on an early date in the coming year. By a temporary Federal injunction secured in 1927 the companies restrained the state authorities of Kentucky from interfering with a 12½ per cent rate advance in that state. As some of the same questions were involved as in the Missouri rate case, it was by no means certain that the injunction would be made permanent. Unless means are yet discovered of securing important modifications of the Missouri decision, it appears likely to cause the insurance companies a vast amount of trouble in other States, as it holds in effect that they are entitled only to a very small profit from their underwriting operations but must look mainly to their interest earnings for profits.

A commission which investigated fire insurance rates in Virginia during 1927 made a report recommending large reductions and much more control of rates by the State, some of the reasons advanced being similar to those brought out in the Missouri decision.

Classes of insurance other than fire transacted by fire insurance companies did not in all instances turn out satisfactorily. The most important of these was automobile, fire, and theft insurance. Many companies wrote a somewhat smaller volume of this business in 1927 than in 1926. This falling off was attributed to several causes, chief among which was the suspension of sales during part of the year by the Ford Motor Company pending the bringing out of its new model. Not only did this prevent the buying of thousands of Fords, but it retarded the sales of other low priced cars as many prospective purchasers postponed buying until they could see the new model Fords. Another cause which affected the volume of automobile insurance was the low price of used cars, especially those of the lower priced makes. Many owners did not consider it worth their while to insure such small values.

Tornado insurance, which is an important class with many fire insurance companies, had a bad year. A tornado which struck St. Louis on September 29, in about five minutes caused a loss to insurance companies variously estimated at from $6,000,000 to twice that sum, and there were other tornadoes which caused heavy losses. These fell unevenly upon the insurance companies, and, while some probably made a profit on their tornado business, others sustained a heavy loss.

Another class of business written in considerable volume by a limited number of fire insurance companies is insurance against damage to growing crops by hail. The season generally was a bad one, the losses being very heavy in many of the Western States and also in the wheat growing Provinces of Saskatchewan and Alberta, where many American companies operate.

The casualty insurance and surety business, the annual premium income from which was rapidly approaching a billion dollars, had a year's experience which could not be regarded as satisfactory. The surety business and some of the smaller casualty branches were profitable, but the two great income producers, workmen's compensation and automobile liability insurance, were not.

Workmen's compensation had not been profitable for several years. The tendency in legislation was strongly towards liberalizing workmen's compensation laws and increasing the benefits under them. This should be reflected in higher insurance rates, but it was not always possible to induce State authorities having supervision to sanction such advances as would be necessary to keep the business on a profitable basis. The tendency in loss ratios was upward, even where laws had not been changed, as workmen became more insistent upon being paid claims even where it was doubtful whether they were due.

An analysis of the claims paid on a very large volume of business indicated that the loss ratios were generally higher on risks paying small premiums. The small employer cannot employ safety engineers and develop safety organizations among his employees to the extent that is possible to the large employer. Most of the small risks are carried by the stock companies as the mutuals usually solicit only the larger ones. The stock companies have been demanding that rates on small risks be made higher in proportion to pay roll than those on large ones engaged in the same industries. As the central rate-making organization was not controlled by the stock companies they had been unable as yet to secure the changes desired.

Until recent years automobile liability insurance had been almost continuously profitable to the companies. In 1925, however, the experience began to change and grew worse in 1926 and 1927. Finally in November, 1927, the stock casualty companies increased the rates on private cars to an extent which averaged about 16 per cent for the entire country. The advances were not uniform but were based on experience in localities and on classes of cars.

Undoubtedly one cause which contributed to the increase in liability losses was the greater activity of those damage case lawyers who present claims without merit but get compromise settlements to avoid suit. So serious had this practice become that in 1927 the National Bureau of Casualty & Surety Underwriters organized a special department to combat the evil.

Probably the most serious danger confronting the automobile liability insurance business was the increased demand for laws making such insurance compulsory so that victims of accidents could collect judgments for damages even though the owner of the automobile by which they were injured be judgment-proof. Massachusetts had such a law in effect during 1927, and other States which postponed legislating until the results of the Massachusetts experiment could be seen were likely to follow the example of that State. Its law made it possible for those who secured judgments to collect them, up to the limit of insurance, and to that extent, at least, it had been a success. It was a question whether it resulted in more careful driving and in any reduction in the large number of highway accidents.

From the standpoint of the casualty underwriters the results in Massachusetts were unsatisfactory. The insurance rates were found to be inadequate, but under the law they could not be changed until 1929. Claims for injuries and suits for damages increased. One casualty company withdrew from the State because of its losses on this class of business, and another arranged to write only other classes of business there, while still others requested their agents to write no more automobile liability business than possible. There was no opportunity to select risks as the law required a company writing this class of business in the State to accept any risk which applied for insurance, unless excused from so doing by a State board.

There appeared little doubt that a number of other States would enact laws somewhat similar to that of Massachusetts or laws modeled after workmen's compensation laws, under which those injured by automobiles would be compensated, regardless of negligence, according to an established scale. The enactment of laws of either of these classes would probably injure the business of the casualty companies as there usually is little profit in insurance required by law.

Personal accident underwriters were forced to adopt a more conservative policy because of the increased losses resulting from the granting of greater benefits for the same premium and the continually growing accident frequency due to the automobile.

Health insurance generally was not satisfactory to the underwriters. Some companies had largely given it up. The granting of non-cancelable accident and health policies, which was very popular with a number of companies a few years ago, resulted in such heavy losses that only a few companies now write such policies and they have been obliged to restrict them.

Burglary insurance continued to grow in volume and the experience of 1927 was more satisfactory than in the years just preceding. In New York State the improvement was attributed in no small measure to the enactment of the Baumes laws. In some of the Western States, "vigilantes," organized by bankers' associations, reduced the number of bank burglaries.

Plate glass insurance was so profitable for several years that in 1927 the companies voluntarily reduced the rates and liberalized their policies.

The fidelity and surety business generally enjoyed a good year in 1927. The volume of this business was growing constantly and the annual premium income was now approximately $100,000,000. The writing of fidelity bonds, those guaranteeing the honesty of persons in positions of trust, has not been profitable for several years. While companies formerly made a careful investigation of every applicant for such a bond before accepting him as a risk, this practice was largely abandoned because of the expense, and the practice of bonding the occupants of certain positions in an organization, regardless of who they might be, grew up. Since the War many employers apparently have been less careful than formerly about informing themselves as to the character and record of persons employed by them, and losses under fidelity bonds have increased. Some underwriters believe that in order to restore that class of business to a profitable basis it will be necessary to charge higher rates and revive the practice of investigating applicants for fidelity bonds.

The depository branch of the surety business, which for several years suffered heavy losses due to the failure of banks in which bonded funds were deposited, was now coming back to normal, partly because of the fewer bank failures and partly because of more careful selection of banks to which bonds are granted.

Contract bonding, the most important branch as regards volume, was generally profitable, as money was plentiful and contractors were able to finance their operations.

The surety companies were constantly watching for new sources of business and new ways of serving the public. In quite recent years several companies had engaged rather extensively in guaranteeing notes given in payment for automobiles and other articles purchased on the deferred payment plan and also in guaranteeing payment of principal and interest on mortgage bonds. Several very heavy losses on such bonds were sustained in 1927. Another comparatively new class of bonds, for which there was considerable demand, was known as completion bonds. They guarantee the completion of improvements on real estate, the value of which, together with that of the land, constitutes the security for the mortgage.

Life insurance again enjoyed the greatest year in its history. The amount of new insurance written and paid for was approximately $16,900,000,000, an increase of about half a billion dollars over that of 1926, and the amount of insurance in force in legal reserve life insurance companies was approximately $87,000,000,000. The assets of these companies amount to $14,500,000,000, a tremendous sum which has to be kept busy earning interest in order to enable the companies to meet their obligations as they become due.

Health conditions during the year were unusually favorable and the mortality rate was low. This saving would enable companies which issue policies on the participating plan to continue the existing liberal scales of dividends to policyholders or even increase them for a time. Actuaries were by no means certain that present dividend scales could be continued indefinitely, as the rate of interest was falling and the time might come within a few years when companies would be earning only a little in excess of the 3 or 3½ per cent on which their rates are based.

So fully does the public recognize the value of life insurance that those engaged in selling it now devote more thought to ways of making it of the greatest service and less to arguments to prove the need of it. Only a few years ago most of the life insurance policies sold provided for payment in a lump sum when they became claims. A considerable amount of the proceeds paid in this way was lost through unwise investments and otherwise. Then the payment of claims in monthly installments over a long period was advocated, and a vast amount of insurance was being sold on that plan.

During 1927 the subject of life insurance trusts attracted a great deal of attention. It was not new, but its importance became more generally recognized and a number of trust companies organized special departments to handle trusts of this class and to seek the coöperation of life insurance agents in inducing their clients to make all of their life insurance policies payable to a trust company so that the proceeds of all could be administered as one fund under the terms of the deed of trust.

Not so much group life insurance was sold in 1927 as in some previous years, probably because general business was not so active and also because fewer large group policies, such as those covering the employees of great railroad systems, were issued. Group insurance was being constantly extended to smaller employers, and more of it was being written upon the contributory or coöperative plan, under which both employers and the insured employees contribute to the cost. In order to secure more uniformity in practices in writing group insurance the companies which issued that class of policies late in 1927 organized an association.

INTERCOLLEGIATE ASSOCIATION OF AMATEUR ATHLETES OF AMERICA. See ATHLETICS, TRACK AND FIELD.

INTERNAL COMBUSTION ENGINES. The major activity in the line of large oil engines continued to lie in the marine field. Over a million horse power in large marine Diesels was under construction at the end of 1927—more than that of steam, reciprocating engines and turbines combined. By far the greater part of this construction was in Europe and included a considerable number of ships for American firms, notably oil tankers. The reason for this lay in the lower cost of construction in foreign yards. In the United States the Dieselization programme of the Shipping Board was being extended and contracts for eight more engines of approximately 4000 horse power each were let during the year to American firms, making a total to the end of 1927 of 17. These engines include both the two- and the four-cycle double- and single-acting types. Three of the ships to be converted were to be of 11,800 tons and the drives will be Diesel-electric. Three others with this type of drive each would have four 1000-horse power, four-cycle single-acting engines, driving direct-current generators. Also, two large American tankers, belonging to the Standard Oil Company of New Jersey, had been converted from steam to American built Diesel drive; and a third, for the Standard Oil Company of California, having Diesel-electric drive of 3200 horse power, was soon to be completed.

While most of the Diesel-engined ships had been cargo vessels, a few passenger liners also were thus equipped. Among these was the *Bermuda,* recently put in service between New York and Bermuda.

Outstanding installations as to size included two 40,000-ton vessels under construction at Harlan & Wolff's shipyard at Belfast, which were to be driven by four 8000-horse power Diesels. The *Augustus,* of 33,000 tons, the largest motorship afloat in 1927, had four 7000-horse power Diesels. Burmeister & Wain of Copenhagen had built six 9000-horse power eight-cylinder double-acting engines for three twin-screw vessels. See SHIPBUILDING.

Diesel-electric drive for ferry-boats was extending in the United States, several more installations of this type having been constructed during the last year. Diesel-electric drive provides a very flexible combination especially adapted to the requirements of ferry service.

In the railway field there were now in service on American railways 15 Diesel-electric locomotives and four more on order, according to the annual report of the International Railway Fuel Association. This covers both switching and main line service. Also, the Canadian National Railways had a number of such locomotives in service and in Europe the type had become well established.

As concerns the stationary field, Diesel engines up to 15,000 horse power were in service in Europe, although to the end of 1927 the largest engines in service in the United States were about 4000 horse power. Engines of the solid injection type up to 300 horse power per cylinder had been built.

While a number of medium size and large oil engines were installed in America during the year, by far the bulk of the sales were in sizes under 500 horse power. A number of American builders had developed oil engines of the high-speed type, 600 to 800 r.p.m., in sizes up to 80 horse power per cylinder. These were being used for both stationary and semi-portable service; in the latter largely in the construction field for shovels, compressor drive and for industrial locomotives.

Due to the construction of gas pipe lines from Amarillo, Texas, to Denver, Colo., twenty 1000-horse power gas engines were purchased for the pumps. A considerable number of 300- and 500-horse power gas engines driving gasoline recovery compressors were installed in Oklahoma.

INTERNATIONAL ARBITRATION. See Arbitration, International.

INTERNATIONAL ASSOCIATION FOR SOCIAL PROGRESS. See Social Progress, International Association for

INTERNATIONAL COÖPERATIVE CONGRESS. See Coöperation

INTERNATIONAL FEDERATION OF TRADE-UNIONS. See Trade-Unions.

INTERNATIONALISM. For the past four years there has been in Geneva an organization for the purpose of looking after the special interests of American visitors. Previously, Americans going to Geneva, and seeking information about the League of Nations or the great number of international activities centred there, found it difficult to obtain. The few Americans connected with the League of Nations were busily engaged in duties which were particularly severe in the formative years, and there was no time to be given to the problems of individual Americans or the organizations which they represented. To meet this situation the American Committee was formed by a small group of devoted friends of the League who decided to establish headquarters in Geneva. The first year's work was entirely experimental and showed the great need for this body; its work has since grown in importance each year.

It was decided to adopt a name that would be simple and at the same time comprehensive. Accordingly "The American Committee" was selected. It was the purpose of the Committee to be not merely a centre for Americans in Geneva, but the only centre for all American activities there. It was felt that if each American organization having an international interest were to open offices, not only would confusion result, but it would make the country look ridiculous because of its position toward the League and its refusal to become a member.

One of the first things the Committee did was to establish the Geneva Institute of International Relations and under that title it gave a series of lectures on international topics which drew immediate attention. The Committee at once joined forces with the League of Nations Union of Great Britain and the League of Nations Non-Partisan Association of the United States, and with their coöperation it has been successful.

The record of the American Committee shows real growth, and appreciation by American visitors. The office of the Company is at the International Club, organized by the leaders of various movements in Geneva. It occupies a splendid building owned by the City of Geneva adjoining the Casino. In 1926 more than 6000 Americans registered in the Committee's office and received information or assistance in some form.

To accommodate Americans visiting Geneva, a staff is available to escort visitors through the various departments of the secretariat and give them a visual indication of actual work being done. This privilege of taking persons through in groups is reserved to the American Committee.

To maintain relationship between Americans who are doing special international work and those who are visiting Geneva for serious study and observation, the committee arranges for a series of luncheons during the meetings of the Assembly in September and for a few weeks previous thereto. These luncheons are held daily at the International Club. The guest of honor on each occasion is either one of the leading officials of the League or one of the chief representatives of delegations to the Assembly. The committee has made certain rigid rules in the matter of policy. It does not permit discussion of American policies, domestic or foreign, to take place at its luncheons or other functions; its principle is to sustain the Government in Washington and although individual members may not approve certain legislation or governmental actions, they are never permitted to express these views publicly at the functions.

An International Fact-finding Body. Fact finding is one of the recent instrumentalities devised to aid citizens to form sound opinions concerning public questions. It was suggested by Theodore Stanfield that an international, judicial, impartial, fact-finding body was a necessary institution in international life. Such a body need not be a court that proceeds to a verdict; rather a body clothed only with those powers it may require to get the facts, the evidence, the testimony, the documents needed to establish the truth. The problem of creating such a body was no doubt as Mr. Stanfield pointed out a novel and difficult one. And yet he believed such an organization might well prove of value in establishing not only pertinent facts relating to the causes of a given war, but also the facts threatening international difficulties and controversies at the time they occur and before they have led to war. The mere fact that the truth was likely to come out with reasonable promptitude, through an appeal to such a fact-finding body, would in itself tend to reduce the number of such occurrences and controversies. Not only documents, but also individuals might be summoned before such a body.

In arguing for his idea, Mr. Stanfield said: "As long as international facts remain hidden in the archives of foreign offices and in the breasts of living statesmen or other men still living, progress along the road to peace must remain slow and halting. If the facts were promptly and reliably made apparent to the people, men and women would learn to face them and to adjust their international relations accordingly."

Walter H. Page Traveling Scholarships. The Common Interest Committee of the English-Speaking Union decided to place these Scholarships for Teachers on a permanent footing by the raising of an endowment fund of £2000 to send two scholars to the United States every year. They were founded in memory of the former American Ambassador to Great Britain to enable British teachers to visit the United States during their summer holidays and the aim is to arouse and stimulate an interest in the United States and the American people in the secondary and elementary schools of Great Britain. Each scholarship is of the value of £50. Complete hospitality in America is offered by the English-Speaking Union of the United States. The Scholarships have a very real value in the promotion of understanding between the British and American peoples, and are an essential part of the work of the English-Speaking Union.

A commission of four distinguished professors from Spanish universities reached New York in October to study American university organization. They intended to formulate details of a plan of organization to be recommended to the new University of Spain. Under the guidance of members of the Rockefeller Foundation, the Commission visited important colleges in the United States.

The Institute of International Education (Director, Prof. S. P. Duggan, 2 West 45th Street, New York) has for its general aim the "developing of international education and good will through such activities as the exchange of professors; the establishment of international fellowships; the holding of conferences on the problems of international education, and the publication of books and pamphlets on the systems of education of the different countries." The Institute, which also serves as the New York office of the American University Union, has as its specific purpose serving as a clearing house of information and advice for Americans concerning things educational in foreign countries, and for foreigners concerning things educational in the United States. In addition it administers and maintains the offices of the American University Union in London, Paris, and Rome and has contact offices and correspondents in the other European countries. It publishes a number of bulletins of interest to students, particularly *Guide Book for Foreign Students in the United States*, *Bibliography on the United States*, *Fellowships and Scholarships Open to Foreign Students for Study in the United States*, *Fellowships and Scholarships Open to American Students for Study in Foreign Countries*, as well as the *Handbook for American Students in France*.

One of the most important functions of the Institute is to secure and administer fellowships for foreign students who are anxious to study in their special fields in American universities and for American students who are anxious to study in foreign universities. Among the fellowships administered by the Institute are: The American Field Service Fellowships for French Universities, American German Student Exchange Fellowships, American Czechoslovak Exchange Fellowships, Franco-American Exchange Scholarships, American Hungarian Exchange Fellowships, Swiss American Exchange Fellowships, Scholarships of the Committee on Foreign Travel and Study for the Junior Year Abroad and Willard Straight Research Fellowship for study in China. In addition the Institute arranges for the placement of a number of young men as "assistants" in Franch lycées and écoles normales.

Japanese Dolls. The success of the 12,641 "Doll Messengers of Friendship" in arousing the friendly thought for America of the entire Japanese people exceeded expectations. At the official welcome in Tokyo on Doll Festival Day (March 3) Ambassador MacVeagh made the presentation speech and many Princes and Princesses, scores of other distinguished men and women and 2000 children attended. In every prefectural capital welcome receptions were addressed by mayors and governors. "Miss America" and her forty eight state sisters were received in audience by Their Majesties in the Imperial Palace. On departing, each Doll Messenger was given a present by the Empress, who also donated a Doll Palace in which to house them permanently. As a return gesture of friendship, 5,000,000 Japanese school girls gave one sen each (about $25,000) to send 60 Doll Ambassadors of Good Will with wonderful kimonos and lacquer furniture to America. They were received with equally elaborate ceremonies in America at Christmas.

United States and Mexico. A project of international friendship between the young people of the United States and of Mexico was announced in October by the Federal Council of the Churches. This undertaking was prompted by the success which attended last year's project of sending the doll messengers of friendship to Japan. It was proposed that "Friendship School Bags" be sent to the children of Mexico, each bag to contain articles of interest and help in the life of school children. The Mexican Vice Minister of Education approved the project and will distribute the bags in the schools of Mexico, of which there were said to be about 15,000 with 1,250,000 pupils. These "friendship bags" were sent by day schools and Sunday schools, by special groups of all kinds in the various religious organizations, and also by individual children and adults. The bags, which will be made of durable fabrikoid, decorated with the Mexican and American flags, are to be especially manufactured for the Committee. The school or group participating in the project will add certain articles to be bought or made, and will send the bag by parcel post direct to Mexico City. The bags were to be officially distributed in the schools on Mexico's Independence Day, Sept. 16, 1928, which day is universally observed.

The Committee declared that this project would give opportunity for interesting and educating the young people of the United States in the history of Mexico and its people, and for promoting a better understanding and feeling of good will between the two countries at a time when such good understanding and feeling might be especially needed.

Viscount Cecil had been an outstanding advocate of a better international order since the great war, representing Great Britain at many international conferences and in the League of Nations. Because of the deep-seated differences with his Cabinet colleagues over disarmament and other international problems he resigned from it. The London *Spectator* (non-partisan) expressed the opinion that if Lord Cecil had been able to stay in the Cabinet he "would have had a better chance than in any other circumstances of keeping the government up to the mark." While this newspaper noted the common French comment that Lord Cecil's resignation was "a great blow to the League" it thinks his blow was rather aimed at those who did not honor the League sufficiently, but it questioned whether it was not just possible that the effects of his resignation might be different and less happy than he expected. That is what the French think, people were assured, and perhaps a good many of them hoped. Lord Cecil deplored in particular: (1) The unconditional rejection of the Protocol (i.e. the Protocol of 1924 aimed at the prevention of war) by the government; (2) the government's refusal of compulsory arbitration by the Hague Court; (3) the breakdown of the work of the Preparatory Commission on Disarmament; and (4) the breakdown of the Three Power Naval Conference. When the Protocol temporarily held the field, he found a good deal that was admirable in it. In a perfect world—a world much more convinced of the virtues of the League than the world in which we live is convinced—the Protocol would be a perfect plan. Unfortunately, it went far beyond popular feeling. It gave to the members of the League a power over one another which filled many countries with alarm.

In the death of the former editor of *The Spectator*, J. St. Loe Strachey, internationalism lost one of its staunchest defenders. He desired an unfettered British-American friendship with no written bond and he believed that war has been outlawed in the English-speaking world and that a war between the United States and the British Empire was unthinkable.

FOREIGN POLICY ASSOCIATION. During the year, the chief developments in the work of this association were; 1. The enlargement of its research department until it included 13 full or part time research workers, headed by Dr. Raymond Leslie Buell, of Harvard, who joined the staff in the autumn. Dr. Buell was giving full time. 2. The establishment of an F. P. A. Washington Bureau, with William T. Stone, editor of the *Information Service*, in charge. Begun very modestly, it is hoped that this bureau will be a valuable source of contact with the government officials and with Congress, and that gradually it may so gain their confidence that they will utilize more and more the technical services of the research department.

INTERNATIONAL LABOR OFFICE. See CHILD LABOR.

INTERNATIONAL LAW. The Committee for the Progressive Codification of International Law appointed by the Council of the League of Nations in December, 1924, held its third meeting at Geneva in March, 1927. The Committee had before it the replies of some thirty governments to a communication embodying a provisional list of the subjects of international law, the regulation of which by international agreement seemed to be presently feasible. It was encouraging that these replies evidenced the fact that the foreign offices of many of the leading countries of the world had given careful consideration to the communications, and, on the whole, expressed a favorable attitude towards the possibility of agreement upon many of the questions.

The Department of State of the United States in its communication referred to the subjects of (1) nationality, (2) territorial waters, (3) diplomatic privileges and immunities, and (4) the responsibility of states in respect of injury caused in their territory to the person or property of foreigners, as subjects upon which international arrangements would serve a useful purpose, and would be desirable, and that there would be no insuperable obstacles to the conclusion of agreements with respect to such subjects.

The replies from a majority of the governments were sufficiently encouraging to lead the Committee to conclude that it was desirable and presently feasible that international agreement should be reached on the following subjects, viz: (1) nationality, (2) territorial waters, (3) diplomatic privileges and immunities, (4) responsibility of states in respect of injuries caused within their territory to the person or the property of foreigners, (5) procedure at international conferences, including the conclusion and drafting of treaties, (6) piracy, and (7) exploitation of the products of the sea.

At the same session, the codification committee considered reports by the various sub-committees appointed at its January, 1926, session, and determined to recommend to the governments the following additional subjects as ripe for international agreement, viz: (1) communication of judicial and extra-judicial acts and letters rogatory in penal matters; (2) legal position and functions of consuls; (3) revision of the classification of diplomatic agents; (4) jurisdiction of courts over foreign states. The committee also in carrying out the last of the mandates laid upon it by the resolutions of the Assembly of the League, namely, "to report to the Council on the procedure which might be followed with a view to preparing eventually for conference for the solution of these questions," united in a recommendation that one or more conferences of official representatives of the various governments, whether or not members of the League, be called by the Council in the near future, to consider and take action with respect to the formulation and submission to their various governments of general treaties embodying provisions relating to such subjects as might be agreed upon by such official conferences, and that the preparatory work of collecting and classifying all the historical, legislative and scientific data, which might be useful for such a conference, be entrusted to a small body of experts selected for such purpose, the various reports of the sub-committees of the codification committee, and the record of its deliberations also to be utilized in this connection.

It appeared to the committee that the work done by it in conformity with the resolution of the Assembly had progressed far enough to justify the conclusion that it was reasonable to expect that a conference of representatives of governments might conclude general agreements as to some portion at least of the law of the various subjects mentioned, and perhaps of others also, which the governments of the world might reasonably accept as embodying recognized principles of the law of nations. It was expected that the reports of the Committee would be submitted to the Council of the League at its meeting in June, 1928, and it was hoped that favorable action would be taken upon the recommendations made by it.

The International Commission of Jurists at Rio de Janeiro composed of representatives of seventeen of the twenty-two American Republics, in session approximately a month, opened on Apr. 18, 1927. It had to its credit twelve projects of public international law, or, if extradition is to be included in public law—which was, however, treated under the conflict of laws—the number was thirteen. In addition, it adopted a code of private international law, or the conflict of laws, of 439 articles. The twelve projects of international law dealt with the following subjects: "Fundamental Bases of International Law"; "States, their Existence, Equality and Recognition"; "Status of Aliens"; "Treaties"; "Exchange of Publications"; "Interchange of Professors and Students"; "Diplomatic Agents"; "Consuls"; "Maritime Neutrality"; "Asylum"; "Duties of States in Case of Civil War;" and "Pacific Settlement of International Conflicts."

The code of private international law contained the following topics:

Preliminary Title. General rules
Book I. International Civil Law
- Title I. Persons
- Title II. Property
- Title III. The various modes of acquisition
- Title IV. Obligations and contracts

Book II. Commercial International Law
- Title I. Merchants and commerce in general
- Title II. Special commercial contracts
- Title III. Maritime and aërial commerce
- Title IV. Prescription

Book III. Penal International Law
Book IV. International Law of Procedure
- Title I. General rules
- Title II. Competence
- Title III. Extradition
- Title IV. The right to appear in court and its modalities
- Title V. Letters requisitorial and letters rogatory
- Title VI. Exceptions having an international character
- Title VII. Evidence
- Title VIII. Appeal for annulment
- Title IX. Bankruptcy and Insolvency
- Title X. Execution of judgments rendered by foreign courts

Of the twelve projects, ten had been prepared by the American Institute of International Law at the request of the Pan American Union, to serve as a basis of discussion. Two—"Asylum" and "Duties of States in Case of Civil War"—were original with the Commission. The project of the code of private international law was prepared by Dr. Antonio Sanchez de Bustamente y Sirven, the distinguished Cuban jurist and statesman and Judge of the Permanent Court of International Justice at The Hague, in behalf of the American Institute of International Law which had been requested by the Pan American Union to prepare a project, or projects dealing with the subject matter of private international law.

By resolution of the Fifth Pan American Conference, held at Santiago de Chile in 1922, creating the International Commission of Jurists, the projects which it has adopted are to pass directly to the Sixth Pan American Conference, which was to meet in Havana on Jan. 16, 1928, for such action as the representatives of the twenty-one American Republics shall be pleased to take, in accordance with the instructions of their respective governments. To the extent to which they are approved, they will be given the form of conventions, and transmitted to the governments of the Americas for ratification.

INTERNATIONAL LAW ORGANIZATIONS. The Institute of International Law held its thirty-fourth conference at Lausanne in August under the presidency of Dr. James Brown Scott. It adopted resolutions, with projects, regarding public international law, on responsibility of states for injury to the person and damage to the property of foreigners; international aërial navigation; radio-telegraphic communications; navigation on the high seas; submarine cables; arbitral procedure; and international commissions of conciliation. The resolutions on private international law related to *locus regit actum*, and the law of checks.

The American Institute of International Law held a meeting at Montevideo in March attended by delegates from the United States and Latin American countries. The projects of Conventions on Public International Law which had been prepared at a previous session of the Institute were approved and referred to the commission of jurists to meet at Rio de Janeiro. and a draft code of private international law was referred to societies of international law in the American republics for subsequent consideration and recommendation to the Institute. The projects were recently published by the Pan American Union.

The Hague Academy of International Law held its 1927 session from July 4 to August 27.

The American Society of International Law held its twenty-first annual meeting in Washington, April 28–30. A notable feature of this meeting was the presidential address of the Hon. Charles E. Hughes on "Possible Gains" in which he discussed among other topics what he called "provocative armaments."

INTERPARLIAMENTARY UNION. The 24th Conference was held in Paris, August 24–30, and was generally considered by its members as a great success. This was due in large part to the magnificent reception given by the French group, by the Government of the French Republic, by the press and by public opinion in France to the representatives of the thirty-two parliaments assembled in the halls of the Senate. The good work was due in a very large measure to the stimulating atmosphere of sympathy and interest which surrounded it. The invitation of the French group received affirmative answers from all the European groups, with two exceptions: the Lithuanian and Jugo-Slav, whose members were detained at home by approaching elections. The Belgian delegation was a noteworthy one, since for the first time since the War it comprised members of all the parties, and it took an active and brilliant part in the debates. All the old-established groups from other continents, such as the American, Canadian, Japanese and Dutch Indies groups, were represented, in addition to several of the groups formed within the last three years; the Mexican, Dominican, Egyptian and Philippine groups. Further, the parliaments of Salvador, Peru and Nicaragua had sent delegates, although those countries were not at the time affiliated with the Union. Chile, Uruguay and Venezuela had also announced their participation, but their representatives did not present themselves at the Conference. The Brazilian, Costa Rican, Cuban and Panama groups which had been formed during and after the Washington-Ottawa Conference, were not represented.

The countries represented were United States of America, Austria, Belgium, Bulgaria, Canada, Czechoslovakia, Denmark, Dominican Republic, Dutch East Indies, Egypt, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Japan, Latvia, Mexico, the Netherlands, Nicaragua, Norway, Peru, the Philippines, Poland, Rumania, Salvador, Sweden and Switzerland. There were between 350 and 400 delegates present.

The conference was opened on Thursday morning, August 25th, by the election of M. Paul Doumer, President of the Senate, as presiding officer. In a speech of great distinction he gave a broad picture of the work of the Union during the forty years of its existence. M. Raymond Poincaré, Prime Minister, gave a brilliant exposition of the modern aspect of international relations, defining in that connection the rôle which the Union is called upon to play. M. Poincaré's speech expressed the philosophy of the Inter-Parliamentary Union.

After these addresses, which aroused great enthusiasm, the general debate on the report of the Secretary General awoke no less interest. This debate gives delegates the opportunity of raising questions which they consider to be important for the future of peace. Taking place as it did in Paris, in the presence of large French, German and Belgian delegations, it could not fail to turn principally on Franco-German and Germano-Belgian relations. M. Magnette even asked the assembly to pass a resolution affirming the attachment of all the members of the Union to the cause of international pacification and declaring—in order to give moral satisfaction to Belgium—that the violation of Belgian neutrality was "a highly regrettable and reprehensible act."

The motion was referred to the Council, which requested its president and a member from each of the groups concerned—German and Belgian—to endeavor to come to an agreement on a common text. That agreement was obtained and at the last sitting of the conference Baron Adelsward read a declaration which completely satisfied the parties concerned. The conclusion to be drawn from this passage of words was that the Union was now strong enough and its members sufficiently imbued with its spirit to make it possible for even the most delicate questions of international politics to be brought before it with impunity, for they are dealt with in an atmosphere of frankness and good will that cannot fail to contribute to their peaceful solution.

Other questions were raised in the general debate: the evolution of the parliamentary system, the problem of national minorities and the failure of the Geneva Naval Conference. The debate on the fight against drugs of addiction was introduced by an efficient report from Dr. Brabec (Czechoslovakia) which drew attention to the main points of the draft resolution submitted to the Conference by the committee for social and humanitarian questions. This draft had the merit of seeking to steer a middle course between the two principal methods advocated in the fight against the drug evil, one of which may be termed the British method and the other the American, and in so doing to unite all forces. In the field of practical experience a Japanese speaker gave precise information on the methods employed by his country for the progressive prohibition of opium in Formosa, and an Egyptian delegate pointed out the difficulties which the system of capitulations causes in his country in the struggle against the abuse of narcotics. The resolution was finally passed unanimously by those present, with one exception, and it is hoped that it will serve to stimulate the zeal of the governments and of the League of Nations in what is undoubtedly a long and difficult task.

Saturday, August 27, the third day of the Conference, was entirely devoted to the consideration of the draft resolution figuring on the agenda under the heading of "A European Customs Understanding." This draft had been amended at Paris by the committee for economic and financial questions, which added to the text prepared by a sub-committee a resolution in favor of the abolition of passports and an appeal to the League of Nations calling upon that body to pursue the work begun by the Geneva Economic Conference. The discussion, which was opened by Mr. Treub (Holland) showed that there was general agreement as to the necessity of making an end of the system of "super-protection" in force in Europe since the War and which is driving that Continent to ruin. The resolution did not therefore give rise to a real debate, but instead to a series of statements of a technical rather than a political character. What objections were raised during these two highly instructive sittings only served to stress the unanimous feeling of the meeting in favor of the principle itself on which the resolution was based. The text was completed by an amendment moved by M. Emile Borel (France) the object of which was the gradual and progressive lowering of customs duties. At the close of the debate, Mr. Treub urged his colleagues not to let their efforts in this domain end with the conclusion of that conference, but to carry home with them the resolutions voted and seek the best methods of acting upon them within their respective parliaments.

Reduction of armaments occupied the attention of the conference during the two sittings held on August 29, and gave rise to animated discussions. The delegates were asked to vote on two distinct drafts. The first of these was a very complete technical plan for the reduction of armaments, consisting of an explanatory preamble, a general statement of principles, special rules relating to land, sea and air forces and the establishment of a system of supervision; the second draft contained a general declaration pointing out the very slight results which had been obtained by the governments and the League of Nations with regard to disarmament, and asking for vigorous action on the part of the groups of the Union. The technical plan was favorably received, although several delegates criticized some of its details; but the general declaration gave rise to considerable opposition. Some objected to it on the ground that it passed over the question of security, whilst others considered that it criticized the League too sharply.

At the end of the debate, the general rapporteur, Mr. Munch of Denmark, was obliged to refer the declaration back to the Disarmament Committee for reconsideration. The Committee met on the following day, and after a two hours' sitting agreed upon a new draft in which a reduction of armaments was asked for as energetically as in the first text, but the criticisms of the League were omitted, and the necessity of developing arbitration and the feeling of security as well as studying the technical aspect of reduction of armaments was emphasized. In this form, the drafts were adopted unanimously. The debate had shown that the Union could not escape the same difficulties with which other international institutions are confronted when studying the problem of the practical application of the principle of reduction of armaments, and that it was its urgent duty to take action with the parliaments with a view to creating a will in favor of reduction armaments sufficiently strong to overcome those difficulties.

Codification of international law was the topic for the last day. The rapporteurs, Signor di Stefano-Napolitani (Italy) and Professor Schücking (Germany) briefly commented upon the draft resolutions before the Conference. The conclusions of those resolutions may be summarized as follows: 1. The calling of a first conference on Public International Law to study the work of the Committee of Experts of the League of Nations, and the transformation of that committee into a permanent body in order that it may efficiently carry on the work. 2. The drafting by the Inter-Parliamentary Committee for Judicial Questions of a general synthetic plan for the codification of international law. These proposals gave rise to a debate of a scientific rather than a political nature which showed the general desire that the rules for international law already existing or now in formation should be brought up to date.

All the speakers were not, however, agreed as to the methods to be employed: delegates from European countries were in favor of progressive codification under the auspices of the League, while the delegates from the United States of America moved an amendment providing for the calling of periodical conferences whose aim should be to "give definite form and statement to the principles of law already generally accepted and to formulate such amendments and additions as may be useful or necessary." The proposal was therefore more ambitious than the resolution, which latter draft it would logically have replaced had it been voted. The amendment did not however obtain the approval of the meeting, which adopted the draft resolution with three corrections, aiming in particular at introducing into international law the new conception of international penal repressive measures.

M. Fernand Bouisson, the President of the Chamber of Deputies, who had presided over the last sitting, delivered the closing address to the conference. After having drawn attention to the interesting nature of the discussions which had just come to an end and thanking all those who had contributed to the organization of the meeting, he touched upon the present state of evolution of the parliamentary régime as "the supplest and most simple, the best adapted to the needs of modern government, the only one which places control in the hands of the sovereign people." Turning to the delegates M. Bouisson added: "By endeavoring to raise these methods of free discussion and persuasion to an international level, by contributing to the development of an international parliamentary life, you know that you are working for the future."

The publicity given to the conference both in France and abroad will contribute to the firm establishment of the institution. It should however be noted that the defect seen at nearly all the conferences recurred at Paris: while certain delegations are chosen with the greatest care and are really representative of the different parties within the respective parliaments, others appear to be composed in a haphazard way of any who may enter their names, and without any fixed method. The consequence is that certain parliaments whose prestige stands high in the world do not occupy the position to which they are entitled at the conferences nor exercise the influence which should naturally be theirs.

At the final banquet M. Briand made an important speech in which he outlined the peace policy followed by the French government. The press in France and abroad also devoted an unusual amount of notice to the debates of the Union, a fact which contributed to the success of the conference. In this way the echoing platform of Paris has made the Union better known in the whole world and has attracted public interest to its work. This institution has thus found great encouragement which will enable it to continue its work with yet greater assurance and confidence.

The Inter-Parliamentary Council held its Spring session in Geneva on April 23 at the Palais Eynard. It was preceded and followed by sittings of the Committee for Juridical Questions, the Sub-Committee for the Study of a Technical Plan for Reduction of Armaments, and the Sub-Committee for Migration Questions. As usual on such occasions, the Executive Committee also held a sitting. Dr. Christian L. Lange is Secretary General of the Interparliamentary Union with headquarters at 5, Place Claparède. Geneva.

INTERSTATE COMMERCE COMMISSION. See RAILWAYS.

INVESTMENT TRUSTS. The term investment trust has been well known in Great Britain for a good deal more than half a century. In that country active development of investment trusts as a means of applying and collecting comparatively small sums under conditions of relative safety proceeded vigorously after the year 1860 and has finally reached the highly developed stage in which the resources of British investment trusts of all classes (land and finance) were estimated at £400,000,000. In the United States, the term investment trust was hardly known prior to the close of the World War (the first recorded instance of such a trust dating only from 1907). Since the year 1920, a substantial growth of investment trusts has taken place, partly as the result of foreign investment in the United States, and partly because of the constantly widening interest of American investors in stocks and bonds as a means of applying savings. An investigation made by the Attorney General of New York in the early autumn of 1927 showed a total of 135 investment trusts operating in that state alone with $400,000,000 capital. To-day, there are 150 (close of 1927) with $500,000,000 of capital. Probably most of those that have been established in the United States, however, have headquarters, or at all events, an office, in New York City.

The investment trust is what its name implies—a trust fund established by contributions from individual investors who want to turn over the business of managing their funds to others. The management of an investment trust may thus be individual or corporate. In the latter case, a management corporation is formed whose purpose it is to receive, invest, and manage and eventually to distribute the earnings of, moneys placed in its hands by investors. There are still various cases in which persons have merely acted in their individual capacity as trustees for funds deposited with them by others which they have pooled as received, and have used for the purchase of securities which, in their opinion, were sound.

In order to establish confidence, it is customary that the individual or management corporation engaged in operating an investment trust shall place the securities growing out of successive operations with a recognized trustee institution—usually, under American law, a trust company. An indenture specifying the conditions under which funds will be received, investments made and the resulting securities set aside and from time to time withdrawn and sold, is drawn up, and, upon the basis of this indenture, the trust company which has been selected as holder of the securities "accepts" the trust, agreeing to carry out the provisions of the indenture in so far as the holding and disposing of securities are concerned. This leaves the management company, with its board of directors, responsible for altering the securities of the trust, taking in the resultant proceeds, determining what securities to buy, making the purchases, placing stocks and bonds thus acquired with the trust company, and from time to time determining upon a withdrawal and sale (if so permitted by the indenture).

In its simplest form, the investment trust assumes the shape of a so-called "fixed fund" which is invested in a specified list of securities. Titles to ownership are represented by shares or "certificates." Thus, for example, the investment trust may undertake to purchase 100 shares of each of 10 named companies and to deposit the whole 1000 shares with a trust company, thereafter selling, let us say, 1000 shares or certificates each of which entitles its holder to a proportionate share or ownership in the entire body of securities so deposited. In this case, management is reduced to a minimum, since the purchases are made in a specified way, and it is usual to provide that, in the event a given issue of stock is retired or must otherwise be disposed of, the resulting funds shall be reinvested in the remaining securities of the original list. The holder of the investment trust shares or certificates thus becomes entitled merely to his pro rata share of the entire receipts, and to a corresponding pro rata distribution of the proceeds at the time when the trust matures or ends, or is dissolved.

A more complex form of undertaking is afforded by a so-called "managed" list of investments. In such a trust the management company merely undertakes to buy any securities it pleases and to sell them when it thinks fit. This form of management may be accompanied by published statements of holdings from time to time, as a matter of good faith, or may be of the "blind pool" type, in which the managers are obviously stock market operators, buying and selling when and as they deem best. Of course, in such a case the investment trust usually announces, or at all events guides itself, by an "investment policy" which may involve merely more or less mechanical diversification, such as (in one actual case), the keeping of the funds in not less than 100 different securities distributed in specified proportions between industrials, rails, government issues and other types of obligations. Most of the recent discussion of investment trusts has centred around this question of investment policy and method of using and accounting for the funds received.

It should be added that in some investment trusts, particularly of the English type, the practice of depositing with a trust company is omitted. In this case the management corporation either increases its stock from time to time, so that the investor becomes a stockholder of the management corporation (and buys no certificates or debentures), or else it issues debentures which bear a fixed rate of interest and in some cases are accompanied by warrants entitling the holder to receive shares in the corporation, junior to those of the organizers, and contributors of capital. In this case the debenture holder gets a fixed rate of interest first of all and then a division of profits is made between him and the managers of the corporation who presumably hold its senior stock, or a substantial share of the junior stock, or both.

It is evident that whether the latter type or one of the other forms be employed, the profit to the managers of the investment trust comes from the fact that they sell participating rights (in income or capital) to investors at a figure higher than is necessary to acquire the securities which are bought for the trust. In the best managed and most straightforward investment trusts, the actual cost to the investor is usually made plain and may run from 6 to 7 per cent of income, up to any amount that managers can induce investors to be content with. The remainder of earnings from appreciation may, in some cases, be continuously reinvested in securities, thereby enhancing the worth of the main body of the trust, or may be periodically declared as dividends to stockholders. In many investment trusts the remuneration to the investor, especially when the market value of securities in general continues to appreciate, is greater than he might obtain in other conservative fields, especially as he obtains the advantage of a diversification of investment and a more or less fixed investment policy.

Investment policy is a vague phrase which has no well defined meaning. In general its objects are to obtain the maximum return which is consistent with safety. The object of the investment trust, however, is not primarily safety in the ordinary sense of the term, but is that of enabling the owner of small resources or the man who is too much occupied with his own affairs to give thought to the question of investment to obtain access to the earnings which come from business profits, rather than to be obliged to content himself with mere interest on his "money." The protection of the investor is thus found in wise investment, or wise use of funds, and there is danger that success will be taken as the only test of wisdom, so that investment trust managers who speculate successfully will be regarded as the soundest elements in the profession. Recognizing this danger, most investment trust managers deem it wise to make a plain statement at the outset as to the general direction in which they propose to apply their funds, as well as to the markets in which they intend to operate.

In some cases, they also commit themselves as to policy with respect to the purchase of dividend paying securities and as to the course they intend to follow in using earnings derived from appreciation of capital—whether in distribution or in improving and enlarging the value of the main body of the trust. Diversification in some one of its many forms is thus at the bottom of investment policy of most of the trusts, while other questions bearing upon the methods of selection are dealt with in varying ways. American trusts on the whole have emphasized turnover and rapid profit from sales and purchases, while British trusts have in the main laid emphasis upon making good individual choices, relying on the directors' information and purchasing for a "long pull."

The so-called "Edge Act," adopted in 1919 as an amendment to the Federal Reserve Act, provides for the organization of federal investment trusts, but only one such trust existed in 1927. State laws, for the most part, have reference only to conditions of trusteeship and provide little regulation of the operations of the management companies. The Attorney General of the State of New York, after a lengthy investigation which he made in 1927, published a report containing a variety of suggestions for investment trust control.

IODINE TREATMENT. See GOITRE.

IOGOLD. See OATS.

IONA SOCIETY, AMERICAN. An association chartered May 23, 1925, by the Regents of the University of the State of New York to "preserve, encourage and promote Celtic culture," and for the establishment in Scotland of a centre of Gaelic culture. Progress was made during 1927 in the plans for the establishment of a university, offering courses in the Celtic language, literature, music, arts and crafts, to be located in Scotland with its principal office in New York. The officers in 1927 were: President, Richard M. Montgomery; vice presidents, Dr. John H. Finley and James Stewart Cushman; secretary, Dr. Alastair S. MacKenzie; treasurer, Nelson Macy; counsel, Col. Alexander R. Fordyce. The headquarters of the Society is at 300 Madison Avenue, New York.

IOWA. POPULATION. According to the fourteenth census of the United States, the population of the State on Jan. 1, 1920, was 2,404,021. According to the State census taken in 1925, the population was 2,419,927. The estimated population on July 1, 1927, was 2,425,000. The capital is Des Moines.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	19,947,000	899,566,000	$275,701,000
	1926	11,170,000	435,630,000	243,953,000
Oats	1927	5,972,000	197,076,000	82,772,000
	1926	6,218,000	195,867,000	68,553,000
Hay	1927	3,458,000	5,681,000[a]	70,202,000
	1926	3,412,000	4,057,000[a]	62,128,000
Wheat, winter	1927	425,000	8,075,000	9,448,000
	1926	342,000	7,524,000	9,029,000
Wheat, spring	1927	41,000	686,000	781,000
	1926	36,000	554,000	659,000
Potatoes	1927	78,000	6,896,000	6,396,000
	1926	74,000	5,846,000	9,988,000
Barley	1927	456,000	14,318,000	9,450,000
	1926	268,000	8,174,000	4,577,000

[a] tons.

MINERAL PRODUCTION. Coal production continued in 1926 at about the same rate, being in quantity 4,625,487 net tons in 1926 and in 1925 4,714,843 tons; in value, $14,214,000 in 1926 and in 1925, $14,807,000. There were produced 4,925,811 barrels of Portland cement in 1926; in 1925, 4,648,135 barrels. Cement shipments had a value, for 1926, of $8,167,431; for 1925, of $8,674,563. Of gypsum, in the production of which the State ranked second, there were produced in the year of latest available statistics, 1925, 800,167 short tons; in 1924, 727,385 tons. The product had a value for 1925 of $6,734,271; in 1924, of $5,657,339. Stone, sand and gravel production reached totals of some importance. The entire mineral production of the State, with allowance for duplications, was $38,420,203 for 1925; for 1924, $40,459,869.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $21,859,326; their rate per capita was $9.03. They included $748,304 apportioned for education. Totals not included above, of $850,907 for interest payments and of $11,134,842 for permanent improvement outlays, brought the aggregate of State expenditure to $33,845,075. Of this, $12,806,554 was for highways; $4,248,881 being for maintenance and $8,557,673 for construction. Interdepartmental payments accounted for $118,491 of the expenditures of the State.

Revenue receipts were $34,774,206; or per capita, $14.36. Of their total, property and special taxes yielded 36.8 per cent, attaining a rate of $5.28 per capita. Earnings of departments and compensation paid the State for officials' services supplied 15.6 per cent of revenue; 40.8 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a tax on gasoline sales.

Net State indebtedness on June 30, 1927, was $18,213,896, or $7.52 per capita. Property subject to ad valorem taxation had a total valuation of $1,574,776,233. State taxes levied were $10,853,170, or $4.48 per capita.

TRANSPORTATION. The number of miles of railroad line in the State on Jan. 1, 1927, was 9,810.68. No new construction in 1927 was reported.

EDUCATION. The Legislature enacted a measure for the establishment and maintenance of junior colleges in the public education system. It made mandatory the payment of school bonds during the term of issue. By law it was required that when 25 parents or guardians should so petition a school board must establish a kindergarten. A library expenditure on books at the yearly rate of 15 cents to each pupil was required of all school districts.

CHARITIES AND CORRECTIONS. The Board of Control of State Institutions had under its charge in the year ending June 30, 1926, 15 State charitable and penal institutions. These, with the numbers of their respective inmates, were: Soldiers' Home, 444; Soldiers' Orphans' Home, 521; Juvenile Home, 255; Institution for Feeble-minded Children, 1617; State Sanatorium, Oakdale, 266; Training School for Boys, Eldora, 481; Mount Pleasant State Hospital (insane), 1308; Independence State Hospital (insane), 1384; hospitals at Mount Pleasant and independence for the inebriate, 42; Clarinda State Hospital (insane), 1307; Cherokee State Hospital (inebriate), 1249; Hospital for Epileptics and School, Woodward, 353; Hospital for Epileptics and School for Feeble-minded, 306; State Penitentiary, Fort Madison, 1048; Men's Reformatory, Anamosa, 994; Women's Reformatory, Rockwell City, 81. An important chair and furniture industry was carried on at the State Penitentiary, with net sales in the two-year period of $749,134. Shirts, shoes, clothing, brushes and brooms were also made. At the Men's Reformatory an apron factory showed net sales of $274,700 for the two years, and paid prisoners wages of $85,105. At this institution were made also the State's automobile license plates for 1926 and 1927, and a printing and binding industry was conducted. Prisoners admitted in 1926 to Iowa institutions, according to the Department of Commerce, numbered 677; patients in the State insane hospitals Jan. 1, 1927, numbered 5846.

LEGISLATION. The State Legislature convened in regular biennial session in January. It passed a resolution rescinding the action of certain of the earlier General Assemblies of the State in petitioning the United States Congress to call a Constitutional convention. The purpose of the rescinding resolution was to prevent the anti-prohibition movement from making use of the Iowa petition, based on a former desire for other Constitutional change than the repeal of the Prohibition Amendment, but still counted in the total of States' petitions for a convention. A measure was enacted to place the system of primary roads in the State entirely in the control of the State highway commission. It provided that where a county had issued bonds for the building of roads of this character, the State should assume such indebtedness. A law providing a quarantine against the corn borer and appropriating $200,000 for preventive and eradicating operations against this pest was passed. There was enacted a bill to require counties of the State to issue bonds, when contracting indebtedness, on the serial system. (For educational enactments, see *Education,* above.)

POLITICAL AND OTHER EVENTS. The State Railroad Commission voted October 4 to protest before the Interstate Commerce Commission against the proposal to merge the Great Northern and Northern Pacific railroads. Drake and Des Moines Universities at Des Moines announced May 10 their intention to consolidate after the close of the current academic year. Bituminous coal miners dropped out of the nation-wide strike in that industry October 4, making a settlement with the operators on State-wide lines similar to that made in Illinois. About 9000 miners were involved. It was reported in May that work done by Federal, county and State authorities in coöperation to eradicate cattle tuberculosis had resulted in the testing of 1,138,412 cattle.

OFFICERS. Governor, John Hammill; Lieutenant Governor, Clem F. Kimball; Secretary of State, W. C. Ramsay; Treasurer, R. E. Johnson; Auditor, J. W. Long; Attorney General, John Fletcher; Superintendent of Public Instruction, Agnes Samuelson; Secretary of Agriculture, Mark G. Thornburg.

JUDICIARY. Supreme Court Justices: Truman S. Stevens, Charles W. Vermillion, Frederick F. Faville, Lawrence DeGraff, William D. Evans, E. G. Albert, E. W. Morling.

IOWA, STATE UNIVERSITY OF. A coeducational State institution of higher education at Iowa City, Iowa; founded in 1847. The enrollment for 1926–27 was 8676, of whom 4651 were men and 4025 women, and for the autumn of 1927, the enrollment was 6442. The summer school registration totaled 4095. There were 442 members on the faculty in the autumn of 1927. The general library contained 269,000 volumes, and the law library 46,500. The income for 1926–27, including revolving funds, was $6,440,898.39. Gifts to the University during the same period aggregated $587,313.60, including: $450,000 from the General Education Board and Rockefeller Foundation for a new medical building; $7500 from Institute of Social and Religious Research in Character Education; $58,000, General Education Board for Gynæcology and Obstetrics ($11,600 annually for five years); $10,000 from John P. Laffey for a law loan fund; and $26,213 from the Federal government for maternity and infant hygiene. A new school of religion was inaugurated during 1927, offering courses counting towards the bachelor's degree and advanced courses counting toward higher degrees. A large new general hospital and two wings of a nurses' home were under construction; while a new field house, medical laboratories, the second unit of the Iowa Memorial Unit, the second unit of the chemistry building, and a central heating plant were completed for use in 1927–28. President, Walter A. Jessup, Ph.D., LL.D.

IRAK or **IRAQ.** See MESOPOTAMIA.

IRELAND. The smaller of the two main British Isles, with an area of 32,586 square miles; politically divided into northern and southern Ireland, the former consisting of the parliamentary counties of Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone, and the parliamentary boroughs of Londonderry and Belfast; and the latter of the remaining 26 counties. The northern counties are known as Northern Ireland and are under a separate parliament and executive by the Government of Ireland Act of 1920 (See IRELAND, NORTHERN). The southern counties constitute a self-governing dominion, known as the Irish Free State, under the treaty of Dec. 6, 1921. (See article, IRISH FREE STATE.) The total population of the island June 13, 1921, was estimated at 4,485,000 as compared with 4,390,219 at the census of 1911. No census for all Ireland was taken in 1921. Statistics for Ireland as a whole are no longer available, but for the two divisions they will be found under their respective titles, IRELAND, NORTHERN, and IRISH FREE STATE.

IRELAND, NORTHERN. The northeastern part of Ireland, comprising six of the nine counties of Ulster: Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone, and the two parliamentary boroughs of Belfast and Londonderry. Capital, Belfast.

AREA, POPULATION, ETC. The area of Northern Ireland, exclusive of water, is 3,351,446 statute acres (also given as 5238 square miles). According to the census taken in 1926, the population was 1,256,322, as compared with 1,250,531 in 1911, the date of the previous census. The population of the capital, Belfast, was estimated at 434,000 in 1924. The following are the latest statistics with respect to education: Elementary education, 2006 public elementary schools with 200,287 pupils on roll; secondary education, 72 schools with 9357 pupils; technical education, 41 technical schools and 56 other centres with over 20,000 pupils; higher education, Queen's University at Belfast, with 110 professors and lecturers, 1209 students, in 1927.

PRODUCTION, ETC. The most important industry in Northern Ireland from the point of view of numbers employed and value of products is agriculture. Approximately as many persons are regularly employed in that as in all other pursuits combined. The principal products are potatoes, cattle, bacon and hams, eggs and butter, the exportable surplus being shipped to Great Britain. The two principal industrial enterprises are linen manufacturing and shipbuilding, both centred at Belfast. The former provides employment for approximately 110,000 persons, excluding those engaged in growing the fibre. There are about 1,000,000 spindles and 40,000 looms. The value of linens exported from the United Kingdom in 1925 was £11,207,267, practically the whole of which came from Northern Ireland. The Belfast shipyards employ approximately 20,000 persons, and possess an output capacity exceeding 250,000 tons a year. Other important manufactures are ropes and twines, tobacco, soaps, aërated waters, biscuits, spirits, hosiery and underwear. No separate figures for commerce of Northern Ireland are available, because they are included in the general figures for the United Kingdom.

FINANCE. The bulk of the taxation is imposed and gathered by the Imperial government. After the deduction of certain specified sums the balance is remitted to the Northern Ireland Exchequer. The amounts deducted by the Imperial Treasury represent: The net cost to the Imperial Treasury of those Northern Irish services which have been "reserved" to the Imperial Parliament; and a contribution (fixed at £7,920,000 annually, but subject to revision) towards Imperial liabilities and expenditures. The share of Northern Ireland in the taxation controlled by the Imperial authorities is determined by the joint exchequer board, comprising a representative of the Imperial Treasury, a representative of the Northern Irish Treasury, and a chairman appointed by the King. The revenue accruing to the Northern Irish Exchequer in 1925–26 amounted to £12,726,000 and the expenditure amounted to £12,676,000. For the year 1926–27 the revenue was estimated at £11,659,000 and the expenditure to an approximately equal sum.

COMMUNICATIONS. In addition to the railway mileage of 765 miles, the country is served by various inland waterways, supplemented by 180 miles of canals.

GOVERNMENT. Northern Ireland has a local parliament with restricted jurisdiction; forms an integral part of Great Britain; is represented in the British Parliament by 13 members; and is subject to the same taxation as that of Great Britain. The Governor in 1927 was the Duke of Abercorn. The ministry was as follows: Prime Minister, Viscount Craigavon; Finance, H. M. Pollock; Home Affairs, Sir R. Dawson Bates; Labor, J. M. Andrews; Education, Viscount Charlemont; Agriculture, E. M. Archdale; Commerce, J. M. Barbour.

IRISH FREE STATE. A self-governing dominion of Great Britain, constituted under the Irish Free State government act of December, 1922, which embodied the terms of the treaty of Dec. 6, 1921. Capital, Dublin.

AREA AND POPULATION. The Irish Free State comprises about five-sixths of the total area of all Ireland. According to the census of 1926 the total area was 17,019,155 statute acres or 26,592 square miles. The population, according to this same census, was 2,972,802, as compared with 3,139,688 in 1911. The loss in population is almost entirely due to emigration caused by unsatisfactory economic conditions in the dominion. The movement of population in 1925 was: Births, 62,069; deaths, 43,650; marriages, 13,820; immigrants (1926), 10,638; emigrants (1926), 29,412. Dublin, the capital, had a population (with its registration area) in 1911 of 397,957. At the census of 1926, the population was 419,156.

EDUCATION. The latest statistics available for elementary instruction showed 5636 schools in operation with accommodations for 550,000 pupils. The number of pupils enrolled in the schools was 493,382; the percentage average daily attendance was 73.5; the number of teachers of all classes was approximately 13,000. The number of recognized secondary schools during the school year 1925–26 was 284 with 25,510 students between the ages of 12 and 20 years. Technical schools are established in all the cities and principal towns. Higher education is supplied by the University of Dublin and the National University of Ireland, the latter having three constituent colleges at Cork, Galway, and Dublin. The statistics for the teaching staff and attendance at the universities in 1926–27 were: Professors and lecturers, 284; students, 3050. Since the establishment of the Free State, the Irish language has been made an essential part of the school curriculum and it is rapidly spreading as a medium of instruction.

PRODUCTION. About one-fourth of the total land area of the Free State is under crops. More than three-fourths of this area is under hay and oats, while one-tenth is sown in potatoes. Historical causes, including free trade in Great Britain and the opening up of large wheat areas in America, drove the Irish farmer into the livestock business which is now the most important in the value of agricultural exports from the country. This development, combined with the failure of Great Britain to encourage industries in Ireland, is responsible in large part for the heavy emigration from Ireland and the reduction in its population. The accompanying tables from the *Statesman's Year Book* for 1927 show the area under the various crops and the yield in 1924 and 1925:

Crops	*Extent in statute acres* *1924*	 *1925*
Wheat	32,612	22,252
Oats	688,670	671,870
Barley and bere	156,239	145,626
Rye	8,134	7,616
Potatoes	392,650	380,140
Turnips	201,571	199,024
Mangels	84,037	78,588
Cabbage	30,994	30,162
Flax	10,859	10,688
Hay	2,288,097	2,265,178

Crops	*Total produce* *1924* *Tons*	 *1925* *Tons*
Wheat	27,720	20,119
Oats	482,069	585,568
Barley and bere	123,429	132,255
Potatoes	1,492,070	2,138,374
Turnips	2,671,580	3,299,373
Mangels	1,000,040	1,318,878
Flax	1,347	1,526
Hay	4,576,194	4,279,828

The number of livestock in 1925 was: Cattle, 3,991,358; sheep, 2,813,062; pigs, 731,500; goats and kids, 183,589; horses in agriculture, 335,078; unbroken horses, 52,683; mules and jennets, 21,854; asses, 196,917.

The mineral resources include: Coal, clay, copper ore, gravel and sand, igneous rocks, limestone, ochre, umber, sandstone and slate. The mineral resources have not been developed to any great extent. The Government of the Free State was expending $30,000,000 on the development of hydro-electric power on the Shannon River. This development will provide 96,000 horsepower by the year 1928, and will be one of the largest undertakings of its kind in Europe. When completed, it will aid considerably in adjusting the economic balance of the country, now preponderantly agricultural. It was reported at the end of 1927 that the project was being completed in accordance with schedule.

Commerce. The statistics on the foreign trade of the Free State were very meagre during the year. According to the U. S. Bureau of Foreign and Domestic Commerce (November, 1927), economic and commercial conditions, though still unsatisfactory, improved in recent months, principally because of more active trading in Great Britain. The Free State was exporting more farm products, although at lower prices, and there was an increase in the number of livestock on the farms. Railway traffic had increased some 11 per cent over the preceding year in spite of the considerable increase in motor bus transportation services. Unemployment data suggested a decrease of some 10 per cent and emigration to non-European countries had declined about 9 per cent. Among the unfavorable features was the continued depression in brewing and malting, which contrasted with increased activity in some of the newly protected industries.

Oversea trade returns, as compared with 1925, were generally favorable. Imports for the first nine months of 1927 were valued at £44,514,000, as compared with £45,514,489 in 1925; exports, on the other hand, increased, the January–September total of £30,519,000 (comparing with £29,623,000 in 1925) definitely improving the trade balance. Live pork, butter, and eggs continued to be the principal factors in the increase. Direct imports from the United States in this period were valued at £3,387,000, an increase over the 1926 level even with the disappearing coal trade. Cereals (wheat and corn), oilcake, petroleum, and tobacco were leading factors in the higher totals. Exports to the United States also increased.

Finance. The budget for the fiscal year ending Mar. 31, 1928, as presented to the Irish Free State Parliament, called for revenues of £23,800,000 and expenditures of £27,000,000. Of the latter item £3,400,000 was for non-recurrent items which were to be covered by borrowing. The income tax would be reduced from 4s. to 3s. in the pound, a total reduction of £500,000. No new duties were proposed but a drawback would be established on imported parts of shoes manufactured for export and on oatmeal manufactured into oat cakes for export. Exchequer returns for the fiscal year ended Mar. 31, 1927, placed the revenues at £25,060,378 and expenditures at £27,075,137. Towards the close of the year it was stated that government financial returns indicated that revenue and expenditure were proceeding in accordance with the budget estimates and that the amount of the proposed government loan would be reduced to £6,000,000, and its flotation in 1927 on the domestic market was anticipated.

Communications. The principal ports are Cork and Dublin. In 1925, 13,390 vessels of 8,812,270 tons entered the ports of the Irish Free State and 13,334 of 8,846,246 tons cleared. Postwar conditions found the Irish railway system in a somewhat precarious position, so much so that government intervention was considered advisable. Wages were high and rates had reached abnormal levels, while receipts were light, primarily as a result of internal political disturbances. A commission appointed by the Free State government to investigate the railway situation advocated unification as a necessary reform, and later, the act of 1924, which came into operation in January, 1925, united into the system all the railways operating in the Irish Free State, exclusive of those lines whose tracks crossed the border into Northern Ireland. The principal railway system of the Irish Free State is known as the Great Southern Railways. In addition to this railroad, the government has constructed and owns three lines of colliery railways which have a combined length of 24 miles. The Great Northern system which operates mainly between Dublin and the six counties comprising Northern Ireland, as well as two or three small lines which cross the border do not come within the purview of the railways amalgamation act.

At the close of 1925 the length of all railways in the Irish Free State totaled 4098 miles. Operating revenues during the year amounted to £4,294,382, and other revenues to £136,137. Operating expenses were £3,925,528, and other expenses £147,601. The rolling stock in operation on all railways in the Irish Free State at the close of the year consisted of 827 locomotives, 1553 passenger cars, and 1579 freight cars. The general condition of the rolling stock was considered good.

Government. The Irish Free State has a written constitution which provides that her status shall be similar to that of the Dominion of Canada. It has a co-equal status with the other dominions of the United Kingdom, has complete control of its economic life, with a customs boundary against all countries, including Northern Ireland and Great Britain. The Governor-General in 1927 was Timothy Michael Healy (appointed in December, 1922). The Executive Council as organized in June, 1925, was as follows: President, William T. Cosgrave; Vice President and Minister for Justice, Kevin O'Higgins; Finance, Ernest Blythe; Defense, Peter Hughes; Industry and Commerce, Patrick MacGilligan; External Affairs, Desmond Fitzgerald; Education, J. Marcus O'Sullivan. Other ministers not members of the council were: Lands and Agriculture, Patrick Hogan; Local Government and Health, James Burke; Fisheries, Finian Lynch; Posts and Telegraphs, James J. Walsh.

History. The chief interest in Irish affairs during the course of the year was the election to the Dail Eireann, as the Irish Parliament is called. On May 23 the legislative body was dissolved by the Governor General and a new election was set for June 9. Almost 400 hundred candidates were nominated for the 152 seats available and pre-election talk centred around the struggle that was bound to come between the Cosgrave group and the De Valera party, although the Labor Party and the National League placed strong candidates in those fields where they thought they had chances of election.

The results of the election were rather disappointing to the government. Its majority was reduced from seventeen to seven. W. T. Cosgrave was reëlected head of the Executive Council. The followers of Eamon de Valera elected forty-four members on the extreme Republican ticket, who were ejected from the Parliament building when they refused to take the oath of allegiance to the British King as called for in the Treaty of 1921. This left the government's 47 members in charge of the situation, the next largest group being the Labor party with 22 representatives, Quite obviously if De Valera consented to take the oath of allegiance and made a coalition with the Labor group he could take control of the government. Many of his more conservative followers urged him to take this course but for the time being he held aloof. President Cosgrave stated that he and his friends would continue to guide the ship of state only as long as enough of the minority group supported him to give real strength to his attempts to carry out his programme of social and economic reform.

The new Dail was organized without any untoward incident on June 23. The political situation was muddled for a short time, however, when on July 10 Kevin O'Higgins (q.v.), Vice President of the Free State, Minister of Justice and of Foreign Affairs, was assassinated as he was walking unguarded along the streets on his way to church. O'Higgins was known as a bitter enemy of the De Valera Republicans and his death was laid at their door. Although he had no love for Great Britain, he was a staunch supporter of the Treaty of 1921 and believed that the oath of allegiance to the British Crown, the stumbling block in the way of the Republicans' participating in the Irish government, should be lived up to in word and deed for fear lest those things gained by the Treaty should be taken away by the very power that granted them. As a direct result of his assassination, the government introduced and had passed a bill greatly increasing its power to deal with such acts of lawlessness. It also passed a measure to compel every candidate to accept the oath of allegiance to the crown in the event of his election.

Obviously the purpose of this was to strike at the De Valera Republicans and to prevent them from being elected again by their constituents. The effect of this measure was nullified almost entirely when the Republican group, consisting of 45 members, made a complete right-about-face and took the oath of allegiance, thereby becoming full-fledged members of the legislative body, and, as intimated above, placing the Cosgrave party in the minority.

Concomitant with this act the Labor party served notice that a vote of confidence would be taken on August 16, with the possibility of throwing the followers of Cosgrave out of office. The purpose of the Republicans and Laborities was defeated, however, when Cosgrave was able to win the vote of confidence by the narrow majority of one, the speaker of the body casting the deciding vote. The actual vote was 71 for Cosgrave and 70 for the coalition of Republicans, Laborities, and National League parties. Thus for the time being was settled the question of whether De Valera could accomplish through parliamentary channels the break with Great Britain which he was so desirous of seeing brought about. President Cosgrave used his slim majority to obtain an adjournment of Parliament until October 11.

In the meantime it was necessary to hold two by-elections to fill the seats of Kevin O'Higgins and the Countess Markievicz (q.v.), who died. A bitter campaign was carried on by the proponents of both the Republican and Government parties. The results were overwhelming in favor of the government. Shortly after these elections, the country was startled by the announcement that a new election would be held for the Dail on September 15. President Cosgrave in explaining his unexpected stroke said: "The Executive Council has advised the Governor General that it is expedient that the Dail Eireann be dissolved. The entrance of the Fianna Fail (Republican party) to the Dail and their alliance with Labor and Independents have created an entirely different situation for the government than that envisaged by the general electorate after the last election. It is evident that the government cannot carry on its programme, as there is no margin of safety against the parties in opposition. On the other hand, it is obvious that the coalition government's foes afford no basis for a stable, progressive administration, since they are united only in a desire to defeat Ireland's present leaders. In this situation the only recourse is to place entire responsibility before the Irish people."

President Cosgrave's action was looked upon as a very shrewd political stroke. Naturally it was opposed by De Valera and the Laborites because they had practically no funds to conduct another strenuous campaign such as the country witnessed in June, while it was freely predicted that Cosgrave would have the moral and financial backing of the entire conservative element of the country. The spectre of political turmoil and possible bloodshed which was sure to follow in the wake of a Republican or Labor victory was a tremendous psychological aid for Cosgrave and his party.

The results of the election on September 15 can hardly be called a victory for Cosgrave. While it is true that he gained a few more seats in the Dail, it is also true that his government had to depend upon the continued support of several minor groups of parties among the Independent and Farmer elements. The most pronounced advance was made by the Republican group, which polled 25 per cent more votes than it did in the June elections and increased its representation from 44 to 57. The chief party to suffer losses in the election was the Labor group, doubtlessly many of its supporters swinging over to the Republican party.

Shortly after the election President Cosgrave stated that his government would remain in office as long as it was able to maintain a majority. Right at its heels, however, was the figure of De Valera, waiting expectantly to take its place at the first signs of a false step. On October 12, President Cosgrave was reëlected President of the Executive Council of the Irish Free State by a vote of 76 to 70. The new ministry as announced at that time and approved by the Dail was as follows: Vice President, Minister of Finance and Minister of Posts and Telegraphs, Ernest Blythe; Defense, Desmond Fitzgerald; Education, John O'Sullivan; Industry and Commerce and External Affairs, Patrick McGilligan; Lands and Agriculture, Patrick Hogan; Fisheries, Finian Lynch; Local Government and Public Health, Richard Mulcahy; Justice, James F. Kenny. Despite several narrow escapes in the remaining days of the session of the Dail, the Cosgrave party was still in control of the government as the year ended.

IRISH LANGUAGE AND LITERATURE. See Philology, Modern.

IRIZAR, Dr. Mario Diaz. Cuban jurist, died in Havana, September 25. He was born in Cienfuegos in 1880, and was educated at Villanova College, Pennsylvania, at the Institute of Matanzas and at the University of Havana. Previous to his taking up the practice of law he engaged in teaching, and later he studied Cuban legislation with respect to trade-marks and patents. On Dec. 6, 1917, he was appointed by President Menocal the first director of the International Trade-mark Registration Bureau in Havana, one of two such bureaus provided for by the Fourth International Conference of American States held in Buenos Aires in 1910. On payment of a fee of $50, in addition to the national fee, international registration was secured. A second bureau was established in Rio de Janeiro after 1923, when a new convention was signed at the Fifth International Conference of American States. Dr. Irizar enjoyed an international reputation in the field of trademark practice, and was in addition an attorney of considerable prominence.

IRON AND STEEL. The iron ore mined in the United States in 1927, exclusive of ore that contained 5 per cent or more of manganese in the natural state, was estimated by the U. S. Bureau of Mines, at 61,778,000 gross tons, a decrease of 9 per cent as compared with that mined in 1926. The ore shipped from the mines in 1927 was estimated at 61,325,000 gross tons, valued at $153,641,000, a decrease of 11 per cent in quantity and of 12 per cent in total value as compared with the figures for 1926. The average value of the ore per gross ton at the mines in 1927 was estimated at $2.51; in 1926 it was also $2.51. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently increased from 9,565,880 gross tons in 1926 to 10,044,000 tons in 1927, or 5 per cent.

The Bureau of Mines estimates were based on preliminary figures furnished by producers who in 1926 mined about 99 per cent of the total iron ore. They show the totals for the principal iron-ore producing States, and, by grouping together certain States, the totals for the Lake Superior district and for groups of Southeastern, Northeastern, and Western States. About 83 per cent of the iron ore shipped in 1927 came from the Lake Superior district, in which approximately 51,691,000 gross tons was mined and 51,183,000 tons was shipped, decreases of 10 and 13 per cent, respectively, as compared with the quantities mined and shipped in 1926. The ore shipped in 1927 was valued at $130,453,000, a decrease of 14 per cent. These totals include the ore from mines in southern Wisconsin and ore shipped by rail as well as by water from all mines, but exclude manganiferous ores amounting to approximately 1,302,000 gross tons in 1927 and 1,065,419 tons in 1926 that contained 5 per cent or more of manganese in the natural state. The ore is chiefly hematite. The stocks of iron ore in this district apparently increased from 8,208,713 gross tons in 1926 to 8,750,000 tons in 1927, or 7 per cent. The stocks at the end of 1927 were about 655,000 tons less than was the average for the preceding five years.

The shipments of iron ore by water from the Lake Superior district in 1927 (including manganiferous iron ores), according to the Lake Superior Iron Ore Association, amounted to 51,107,136 gross tons, a decrease of 13 per cent as compared with these shipments in 1926. The average value of the ore at the mines in the Lake Superior district in 1927 was $2.55 a ton; in 1926 it was $2.56.

The Southeastern States, which constitute the second largest iron ore producing area, including the Birmingham and Chattanooga districts, mined approximately 6,832,000 gross tons of iron ore in 1927, a decrease of 5 per cent as compared with 1926. The shipments of iron ore from mines in these States in 1927 amounted to 6,866,000 gross tons, valued at $14,016,000, decreases of 5 and 7 per cent, respectively, in quantity and value as compared with 1926. The ore is mainly hematite; brown ore and magnetite come next in order. The average value of the ore produced in these States in 1927 per gross ton was $2.04; in 1926 it was $2.07. The stocks of iron ore at the mines in this group of States, mainly in the Birmingham district, decreased from 941,260 gross tons in 1926 to 907,000 gross tons in 1927. These stocks are about 209,000 tons more than the average for the preceding five years.

The Northeastern States, which include the Adirondack district, New York, and the Cornwall district, Pennsylvania, in 1927 mined 2,248,000 gross tons of iron ore and shipped 2,269,000 tons, valued at $7,649,000, increases of 16 per cent in quantity mined, 16 per cent in quantity shipped, and 19 per cent in value of shipments as compared with 1926. The stocks of iron ore in this group of States decreased from 403,742 gross tons in 1926 to 366,000 tons in 1927. These stocks are considerably less than usually carried over at these mines, being about 201,000 tons below the average for the preceding five years. The average value of the ore in these States in 1927 per gross ton was $3.37; in 1926 it was $3.28. Most of this ore is magnetite.

The Western States that ordinarily produce iron ore, named in order of their importance, are Wyoming, Utah, New Mexico, Colorado, Montana, and California. Occasionally Idaho, Nevada, and Washington contribute small quantities. All the ore from Wyoming, New Mexico, and Colorado and most of that from Utah is used for the manufacture of pig iron. Much of the remainder is used as a flux in smelting copper and the precious metals. It is estimated that the Western States mined and shipped in 1927 approximately 1,007,000 gross tons of iron ore, valued at $1,523,000, decreases of 15 per cent in the quantity mined and shipped and 12 per cent in value of shipments as compared with 1926. The ore comprises hematite, magnetite, and brown ore.

IMPORTS AND EXPORTS. The imports of iron ore reported for the year ended Dec. 31, 1927, amounted to 2,620,717 gross tons, valued at $6,068,283, or $2.31 a ton. The imports for the year 1926 were 2,555,441 gross tons, valued at $5,876,316, or $2.30 a ton. The reported exports of iron ore for the year ended Dec. 31, 1927, amounted to 898,793 tons, valued at $3,425,435, or $3.81 a ton, as compared with exports for the year 1926 of 868,710 tons, valued at $3,380,701, or $3.89 a ton. These statistics of imports and exports were compiled from the records of the Bureau of Foreign and Domestic Commerce, of the Department of Commerce.

The accompanying table shows the quantity and value of the iron ore mined and shipped in the United States by the principal producing states. The figures for 1926 are final, but those for 1927 are subject to revision.

ESTIMATES OF IRON ORE MINED AND SHIPPED IN THE UNITED STATES IN 1927 AND ACTUAL OUTPUT IN 1926

District	*Ore mined*		*Ore shipped*			
	1926	*1927*	*1926*		*1927*	
	Gross tons	*Gross tons*	*Gross tons*	*Value*	*Gross tons*	*Value*
Lake Superior:						
Michigan	15,248,254	15,203,000	16,699,984	$43,932,982	14,685,000	$37,757,000
Minnesota	40,701,613	35,398,000	40,961,361	103,715,621	35,558,000	90,289,000
Wisconsin	1,322,776	1,090,000	1,238,885	3,178,156	940,000	2,407,000
Total	57,272,643	51,691,000	58,900,230	150,826,759	51,183,000	130,453,000
Southeastern States:						
Alabama	6,847,789	6,473,000	6,871,412	13,846,656	6,505,000	13,021,000
Georgia	51,642	50,000	51,642	149,198	50,000	136,000
Missouri	124,371	83,000	124,371	532,536	83,000	369,000
North Carolina	15,198	33,000	14,798	31,645	33,000	82,000
Tennessee	138,819	124,000	138,307	312,109	124,000	279,000
Virginia	49,159	69,000	49,703	162,446	71,000	129,000
Total	7,226,978	6,832,000	7,250,233	15,034,590	6,866,000	14,016,000
Northeastern States:						
New Jersey	209,117	219,000	212,152	925,403	198,000	834,000
New York	638,849	850,000	659,741	3,015,586	939,000	4,276,000
Pennsylvania	1,095,505	1,179,000	1,088,634	2,483,056	1,132,000	2,539,000
Total	1,943,471	2,248,000	1,960,527	6,424,045	2,269,000	7,649,000
Western States	1,179,908	1,007,000	1,181,842	1,730,251	1,007,000	1,523,000
Grand total	67,623,000	61,778,000	69,292,832	174,015,645	61,325,000	153,641,000

The production of pig iron in the United States during 1927 was 36,270,567 tons, compared with 39,100,941 tons the previous year, according to the *Iron Trade Review*, which stated that the 1927 output was 8½ per cent below the record production of 40,025,850 tons in 1923.

In the United States the total steel-making pig iron produced in 1927 was 27,345,888 tons, which was 272,256 tons or 9 per cent less than the 30,071,144 tons made in 1926. In 1927 attention was called to the prevalent tendency of using fewer furnaces and increased capacity. The average annual production per furnace increased from 29,570 tons in 1891 to 176,700 tons in 1927. The average output first reached 100,000 tons per furnace in 1909 and never since fell below that figure. It reached 150,000 tons in 1921 and only in 1923 did it drop below that amount. In the American industry the average size of stack was 506.2 tons as compared with 307.2 tons in Germany, 184.7 tons in Belgium, 172.9 tons in France, and 118.2 tons in Great Britain.

Imports of pig iron in 1927 were but 132,568 tons valued at $2,254,355 as compared with 445,773 tons valued at $7,708,982 in 1926 or over 300,000 tons less than during the preceding year. The chief imports were from Great Britain, India and Holland. German and French iron, which had been going to the United States freely in 1926, amounting to 445,773 tons, was largely absent in 1927.

The year 1927 in the American iron and steel industry did not come up to the record of the previous year. There was little new capacity constructed or planned and the plants, a number of which had been extended and improved in the years immediately preceding, were in a position to handle all orders. There was a lack of railroad equipment buying, a slump in automobile production, and a depression in the oil fields, all of which seriously interfered with production; while the bituminous coal strike and the Mississippi flood were other disturbing factors. The orders for new cars by the railroads were the smallest since 1921, and building steel for the first time surpassed the tonnage required by the American railroads. As regards prices, pig iron prices showed the lowest year's average since 1916, the *Iron Age* composite price for 1927 averaging $18.55 per gross ton against $20.42 in 1926, $20.58 in 1925, and $20.90 in 1924. Several months in 1916 it had averaged below $18.00, but it had not fallen to that point since. Likewise the *Iron Age* composite price on finished steel was lower than for any year since 1915, averaging 2.357 cents per pound as against 2.439 cents in 1926, 2.465 cents in 1925, 2.671 cents in 1916, and 1.534 cents in 1915.

In 1927 according to figures of the American Iron and Steel Institute the production of steel ingots, as reported by companies which in 1926 made 95.40 per cent of the steel ingots produced, was: Open-hearth steel, 34,910,650 tons; and Bessemer steel, 6,150,383 tons. The calculated production of all companies, excluding the crucible and electric steel tonnage, for 1927 was 43,040,916 tons, and the approximate daily production of all companies, excluding crucible and electric steel tonnage, was 138,395 tons. In 1926 the production of steel ingots for open-hearth steel was 37,535,584 tons; Bessemer steel, 6,872,169 tons; with a calculated total production for all steel companies of 46,936,205 tons; and an approximate daily production of all companies of 150,920 tons.

The iron and steel exports in 1927 from the United States were the highest since 1921 and totaled 2,180,969 gross tons as compared with 2,167,213 gross tons in 1926. Canada was the largest consumer, taking, in 1927, 832,984 gross tons as compared with 834,858 gross tons in 1926; while Japan and Chosen in 1927 took 278,207 gross tons as compared with 260,361 gross tons in 1926. The imports of iron and steel into the United States in 1927 totaled 750,467 gross tons as compared with 1,110,049 gross tons in 1926.

European Production. The year 1927 marked the recovery of the European iron and steel industry from the effects of the War, and pig iron and steel production of 21 countries made new records. In fact, the pig iron output of the world as estimated by the *Iron Age* (New York) was given at about 84,280,000 gross tons and exceeded the previous and pre-war record of 77,720,000 tons made in 1913. It was also greater than the 77,670,000 tons that were produced in 1926.

In the production of steel a new world's record was established in 1927, namely of 98,200,000 tons or about 7 per cent larger than 91,790,000 tons in 1926, and 31 per cent greater than the pre-war or 1913 output of 74,830,000 tons. In considering these figures the decline of the American output of both iron and steel which fell below that of 1925 and 1926, as discussed elsewhere, must be considered. The four leading European producing countries, Great Britain, Germany, France, and Luxemburg, increased their pig iron production in the aggregate with 35,670,000 tons as against 27,110,000 tons in 1926, and in steel the same countries made 38,410,000 tons in the year 1927 as compared with 29,580,000 tons in 1926. In other words, in 1927 European countries supplied 52 per cent of the world's pig iron and 31 per cent of the world's total output of steel. Notable in this expansion was the record of Germany where the output of both pig iron and steel was 30 to 35 per cent greater than in 1926. In Great Britain the iron and steel industry showed recovery from the coal strike of the previous year, but had not attained to the pre-war figures or even to those of 1923. A significant event of the year was the increased production of iron and steel in Russia which by 1927 had reached about 75 per cent of the 1913 volume. The world's production for the year before the War and later years is indicated in the accompanying tables from *Iron Age*.

WORLD PRODUCTION OF PIG IRON
[*In millions of gross tons*]

Country	*1913*	*1925*	*1926*	*1927* [a]
United Kingdom .	10.26	6.26	2.46	7 32
Germany	16.50	10,01	9.50	12.87
France	5.13	8.36	9.28	9.13
Belgium	2.45	2.50	3.35	3.69
Luxemburg	2.51	2.33	2.52	2 66
Saar	...	1.43	1 61	1.74
Russia	4.49	1.53	2.40	2.92
Poland	...	0.31	0.32	0.57
Norway	...	0.08	0.08	0.09
Sweden	0.73	0.45	0.49	0.47
Italy	0.43	0.50	0.50	0.51
Austria	2.34	0.37	0.37	0.40
Hungary		0.09	0.19	0.20
Czecho-Slovakia..		1.28	1.07	1.15
Spain	0.42	0.46	0.50	0.50
United States ...	30.97	36.70	39.37	36.40
Canada	1.01	0.60	0.80	0.78
Australia	0.04	0.44	0 40	0.41
India	0.20	0.89	0.90	0.91
Japan	0.24	0.91	1.16	1.20
China	...	0.38	0.40	0.41
Total	77.72	75.88	77.67	84.28

[a] Partly estimated. Lorraine's output is included in Germany's in 1913, but in that of France since 1918.

WORLD PRODUCTION OF STEEL INGOTS AND CASTINGS
[*In millions of gross tons*]

Country	*1913*	*1925*	*1926*	*1927* [a]
United Kingdom .	7.66	7.39	3.60	9.17
Germany	17.33	12.00	12.15	16.09
France	4.61	7 33	8.30	8.09
Belgium	2.43	2.51	3.32	3.64
Luxemburg	1.31	2.05	2.21	1.42
Saar	...	1.55	1.71	1.85
Russia	4.76	2.11	3.08	3.48
Poland	...	0.77	0.78	1.35
Sweden	0.58	0.47	0.49	0.48
Spain	0.80	0.57	0.68	0.70
Austria	2.59	0.46	0.35	0.50
Hungary		0.28	0.20	0.21
Czecho-Slovakia..		1.48	1.55	1.60
Italy	0.92	1.76	1.75	1.53
United States ..	31.80	45.39	48.29	44.50
Canada	1.04	0.76	0.78	0.87
Australia	...	0.35	0.35	0.42
India	...	0.45	0.52	0.55
Japan	...	1.32	1.48	1.55
China	...	0.20	0.20	0.20
Total	74.83	89.15	91.79	98.20

[a] Partly estimated. Lorraine's output is included in Germany's in 1913, but in that of France since 1918.

The production of pig iron in Canada in 1927 was estimated at 696,750 gross tons as compared with 737,503 gross tons in 1926. The steel production consisted of ingots 854,375 tons and castings 39,766 tons in 1927 as compared with 743,550 tons of ingots and 33,338 tons of castings in 1926.

The British iron and steel production in 1927 was considerably greater than for several years. The production of pig iron amounted to 7,293,600 tons as compared with 2,458,200 tons in 1926 (the year of the great steel strike), 6,261,700 in 1925 and 7,307,400 in 1924. The production of steel ingots and castings in 1927 amounted to 9,097,900 tons as compared with 3,596,100 tons in 1926, 7,385,400 tons in 1925 and 8,201,200 tons in 1924. This made the 1927 output the highest attained since the war, slightly exceeding the output of 1920 which was 9,067,300 tons.

In France the production of steel and pig iron in 1927 declined slightly from 1926. The total steel producton in 1927 was 8,275,000 metric tons as compared with 8,386,000 metric tons in the preceding year. The 1927 steel production was divided as follows; basic bessemer steel, 5,858,000 tons; open-hearth steel, 2,251,000 tons; electric furnace steel, 91,900 tons; acid bessemer steel, 59,900 tons; and crucible steel, 11,200 tons. The 1927 production of pig iron amounted to 9,293,000 metric tons as compared with 9,393,000 metric tons in the preceding year, and was divided as follows: basic, 7,162,000 metric tons; foundry, 1,200,000 metric tons; phosphoric forge, 38,000 metric tons; foundry-grade hematite, 373,000 metric tons; and hematite, foundry, and bessemer iron, 304,000 metric tons. The French iron and steel imports in 1927 were 97,194 metric tons as compared with 129,640 in 1926, and the exports were 4,715,142 metric tons in 1927 as compared with 3,471,258 metric tons in 1926.

Later statistics for Germany placed its pig iron output at 13,102,528 tons, which compares with 9,643,519 in the whole of 1926. The 1927 figure was more than double the output of 1919, which was 6,283,873 and it also exceeded by more than 2,000,000 tons the pre-war output in the same area.

The exports of iron and steel from the six principal exporting nations for the second time were greater in 1927 than in 1913, totaling 20,590,000 gross tons as compared with 16,190,000 gross tons in 1913. The imports also increased and were the largest ever recorded, amounting to 8,060,000 tons as against 3,820,000 in 1913. The export position of France in

1927 when 5,670,000 tons were exported may be compared with the pre-war year 1913 when some 580,000 tons were exported. Belgium showed a notable increase in 1927 as did Great Britain, the figures indicating recovery from the 1926 coal strike. On the other hand the United States exported less than its competitors, the 2,181,000 tons of 1927 comparing with 2,890,000 tons of 1913. See CHEMISTRY, INDUSTRIAL.

ISOSTASY. See GEOLOGY.

ISTRIA. A former crownland of Austria, but since the war a part of Italy. This region includes the peninsula extending from Trieste to Carniola into the Adriatic together with a few islands. Area, 2035 square miles; population, according to the census of 1921, 342,979. Capital, Capodistria, with a population of about 9000.

ITALIAN ARCHÆOLOGY. See ARCHÆOLOGY.

ITALIAN LANGUAGE. See PHILOLOGY, MODERN.

ITALIAN SOMALILAND, sō-mä'lelănd. A colony and three protectorates of Italy, making up the territory that extends along the east coast of Africa from British Somaliland and Kenya Colony to the Juba River. Area, approximately 405,000 square miles; population, about 1,000,000 (about 1000 Italians). The colony was formerly known as Benadir, but the official title is now Italian Somaliland. It extends from 4°40′N. latitude to the mouth of the Juba River and is divided into three administrative districts. Mogadiscio is the capital with a population of about 20,700. The three protectorates are: The Sultanate of the Mijertins, under an Italian commissioner who resides at Alula; the territory of the Nogal between Cape Gabbee and Cape Garad; the Sultanate of Obbia, extending from the northern boundary of the colony of Benadir to Cape Garad, under an Italian commissioner, resident at the capital, Obbia. The chief occupations are agriculture and stock raising, the latter engaging about half the population. The principal exports are cotton, amber, iron, myrrh, copper, tobacco, and grains. The principal imports are cotton and cotton yarn, textiles, coffee, petroleum, rice, tobacco, sugar, fats, soap, cereals, flour, and preserved products. The total exports in 1925 amounted to 28,519,338 lire; the total imports, 75,712,191. The budget of Italian Somaliland for the year 1926–27 was as follows: Revenue proper of the colony, 16,240,000 lire; State contribution, 42,330,000 lire; extraordinary revenue, 8,629,132 lire; total, 67,199,132 lire. Civil expenditure, 8,629,132 lire; military, 23,030,000 lire; extraordinary expenditure, 8,629,132 lire; total, 67,199,132 lire. The governor in 1927 was Count Cesare de Vecchi (appointed in 1923).

ITALY. A constitutional monarchy of southern Europe, comprising, besides Italy proper, the islands of Sardinia, Sicily, Elba, and some 70 other small islands, together with the territory on the eastern shore of the Adriatic acquired as a result of the Treaty of St. Germain, and arrangement with Jugo-Slavia in 1920. Capital, Rome.

AREA AND POPULATION. The area of Italy before the war was 110,632 square miles, with a total population on Jan. 1, 1915, of 36,120,118. The area as a result of the survey made at the time of the census of 1921 is 119,624 square miles and the population according to that census, 38,755,576; estimated in 1926 at 40,548,683. The movement of population in 1925 was: Births, 1,107,736; deaths, 668,972; marriages, 294,720. The total number of emigrants in 1925 was 280,081, of whom 178,208 went to other European countries or those bordering on the Mediterranean, and 101,873 to countries overseas. The emigrants in 1926 totaled 279,357. In 1925, 189,071 Italians returned to Italy, 39,367 coming from the United States and Canada. The cities with a population of more than 175,000 as estimated on Jan. 1, 1926, were as follows: Bologna, 227,447; Catania, 263,030; Florence, 265,799; Genoa, 333,320; Messina, 187,996; Milan, 879,424; Naples, 852,362; Palermo, 419,153; Rome, 758,569; Turin, 520,164; Trieste, 242,059; and Venice, 203,665.

EDUCATION. According to the law of 1923, elementary instruction is given in three grades, namely preparatory (three years), secondary (three years), and higher (two years). In the elementary grade, all classes above the fifth are regarded as special classes of professional training. The secondary schools are divided into two grades, a lower and an upper. No recent figures are available for elementary and secondary schools, particularly under the new system. In 1927 there were 25 universities, including five that were free, besides university courses given in certain lyceums. There were in addition several institutions of university rank, namely, the Institute of Higher Education at Florence, the Royal Scientific and Literary Academy at Milan, and the Higher Technical Institute of Milan. There are higher institutions for commercial education at Rome and other cities; also higher schools for agriculture and engineering, and various schools for technical education.

PRODUCTION. Italy is a densely populated country and has scanty natural resources. Comparatively few staple foodstuffs needed for popular consumption and an exceptionally small proportion of raw or semi-finished materials required by the country's developing industries are produced within its borders. Consequently there is a dependence on imports from abroad to keep the people fed and the industrial plants supplied with needed materials. The accompanying table from the *Statesman's Year Book* for 1927 gives the acreage and yield of the principal crops for 1925 and 1926:

	Acreage	
	1925	*1926*
Wheat	11,672,000	12,145,000
Barley	582,300	592,800
Oats	1,214,300	1,243,500
Rye	314,600	301,600
Maize	3,880,400	3,576,600
Rice	359,300	363,800
Beans	1,206,800	123,500
Potatoes	863,500	879,800
Sugar beet-root	142,300	......
Vines[a]	......	......
Olives[a]	......	......
	Produce in quintals	
	1925	*1926*
Wheat	65,548,000	60,050,000
Barley	2,800,000	2,400,000
Oats	6,891,000	5,900,000
Rye	1,703,000	1,650,000
Maize	27,936,000	27,951,000
Rice	6,294,000	6,540,000
Beans	5,025,000	8,750,000
Potatoes	21,577,000	23,110,000
Sugar beet-root	15,744,000	....
Vines[a]	998,074	....
Olives[a]	32,780	....

[a] Produce in thousand gallons.

In 1925 there were 682 productive mines, employing 47,289 workers and producing products valued at 734,273,046 lire. The more important minerals according to their value were zinc, sulphur ore, mineral fuel, lead, iron and cuprous pyrites, and mercury.

COMMERCE. Italy's imports in 1926 totaled £1,034,845,840 and her exports £746,820,785, as compared with imports in 1925 of £1,048,015,331 and exports of £730,970,450, thus showing a slight reduction in the unfavorable trade balance. The following table shows the nine countries with which the principal commercial relations were maintained by Italy in 1925:

Countries	*Imports into Italy Lire*	*Exports from Italy Lire*
Austria	658,952,956	666,108,753
Czecho-Slovakia	465,946,965	171,533,876
France	2,349,353,400	2,019,473,389
Germany	2,251,324,488	2,027,028,028
Great Britain	2,722,630,811	1,854,988,608
Kingdom of Serbs, Croats, and Slovenes	780,964,096	496,461,981
Switzerland	521,714,815	1,634,412,365
United States	6,174,816,596	1,887,825,934
Argentine Republic	1,369,995,931	1,145,440,597

A study of the present Italian agricultural situation as compared with the pre-war, published in the U. S. *Commerce Reports* on Dec. 26, 1927, indicates that, notwithstanding the territorial acquisitions of Italy and the emphasis placed by the government on the development of the agricultural possibilities of the country, agricultural production in Italy was not keeping up with the growing demands of the country.

This conclusion was reached from a comparison of the figures of production and of increase in population, and is further borne out by Italian statistics.

It will be noted that agricultural production in Italy suffered greatly during the war years, but its lowest point of depression occurred in the post-war perod, especially in the years 1918, 1920, and 1922. The figures for the years 1920 and 1921 do not include the agricultural production of the provinces acquired as a result of the war settlements. In 1926, the index figure shows that agricultural production amounted to only 108 per cent of the pre-war average, whereas the population had increased to 115 per cent.

The foreign trade of Italy in agricultural products also indicates that agricultural production was not increasing in proportion to demand. The accompanying table shows imports and exports of agricultural products in the last entire pre-war year, 1913, in comparison with the corresponding statistics for the year 1926.

The deficit in trade on the score of these products had, as shown by the table, grown from 52,900,000 lire in 1913 to 3,207,800,000 lire in 1926. In 1913, the exports of agricultural products amounted to practically 95 per cent of the imports of similar products, whereas during 1926 the exports amounted to only 65 per cent.

ITALY'S COMMERCIAL BALANCE OF AGRICULTURAL PRODUCTS

[*In millions of lire*]

Item	1913 *Imports*	1913 *Exports*	1913 *Difference*	1926 *Imports*	1926 *Exports*	1926 *Difference*
Natural products of the soil	524.9	373.7	—151.2	5,291.3	2,719.7	—2,571.6
Partly worked agricultural products	56.5	291.3	+234.8	345.7	1,484.3	+1,138.6
Crops	276.8	276.1	— 0.7	2,338.5	1,539.8	— 798.7
Forest products	148.7	12.9	—135.8	1,006.0	29.9	— 976.1
Total:						
Million lire	1,006.9	954.0	— 52.9	8,981.5	5,773.7	—3,207.8
Million dollars	194.3	184.1	— 10.2	349.3	224.5	— 124.7

AGRICULTURAL PRODUCTION AND GROWTH OF POPULATION IN ITALY

Year	*Value according to 1913 prices Million lire*	*Index (base, 1911–1914)*	*Population as of Jan. 1*	*Index (base, 1911–1914)*
1911..	7,570	100	34,547,424	100
1912..	7,068		34,813,975	
1913..	8,006		35,238,997	
1914..	7,166		35,597,785	
1915..	6,848	92	36,120,118	103
1916..	6,701	90	36,669,732	104
1917..	6,891	92	36,758,161	105
1918..	6,688	89	36,563,090	104
1919..	6,244	84	35,993,923	102
1920..	6,451	86	36,147,422	103
1921..	6,522	87	36,584,974	104
1922..	6,416	86	38,789,827	111
1923..	7,869	105	39,246,823	112
1924..	7,699	103	39,702,787	113
1925..	8,301	111	40,180,724	114
1926..	8,054	108	40,548,683	115

This comparison gives point to the various measures adopted by the Italian government, both to increase production and to lessen imports of foodstuffs.

FINANCE. According to the U. S. Bureau of Foreign and Domestic Commerce, the sharp rise of the lire during the last five months in 1926, resulting from the policy of deflation and currency appreciation adopted by the Italian government, constituted one of the country's most important economic developments during recent years. The appreciation of the Italian medium has not only exercised far-reaching effects on the internal conditions of the country but has tion in the fields of international trade and finance.

Between the years 1922 and 1925 Italian industry and commerce made steady and marked progress. The budget deficits had been reduced and in their stead surpluses appeared. The internal debt was gradually declining. Savings accounts were again accumulating, and new capital investments were being placed on a large scale.

Industrial activity, in Italy had increased to such an extent that, in the place of the unemployment previously obtaining, there was a shortage of labor in many lines. Transportation facilities were reorganized, and agriculture proceeded along normal lines. Notwithstanding these encouraging tokens of economic progress, there was ever present an element of weakness and uncertainty represented by the instability of the currency.

Along with these favorable developments the exchange value of the lira remained at relatively stable levels throughout 1924 and during the first months in 1925, but in June of the latter year a sharp decline took place which could not be accounted for by changed local conditions. This currency development indicated clearly the vulnerability of the lira to any concerted speculative attack, and appreciation of this fact is largely responsible for the government's deflation programme. The necessary preliminaries to this programme had previously been established in the settlement of the war debts owed by Italy to the United States and Great Britain.

The first step taken to remedy the situation was the limitation of all transactions in foreign exchange, with a view to reducing speculation and making impossible the accumulation abroad of lira in sufficient amounts to influence exchange rates. Realizing, however, that the regulation of exchange could serve only as a palliative and that it would be necessary to strike deeper in order to eradicate the basic causes of the weakness of the lira, the government, to this end, then undertook to reduce the adverse foreign trade balance. The most important steps in this direction were the extension of the normal working day from eight to nine hours and the return to what amounted to war bread. At the same time a systematic campaign was inaugurated to promote the use of domestic instead of imported raw materials wherever possible and to create a preference in the local market for local products.

Following upon these regulations, the government undertook to solve the country's financial difficulties. The measures adopted included, first, the transfer by the treasury to the Bank of Italy of the sum of $90,000,000, which reduced its indebtedness by the sum of 2,500,000,000 paper lire. Second, an appropriation of 500,000,000 lire was made in the budget for 1927, to be applied to the further reduction of the treasury's debt to the Bank of Italy, and an obligation was assumed to continue similar annual appropriations until the entire balance had been paid off. Third, a legal limit of 7,000,000,000 lire was placed on the circulation of the Bank of Italy for trade account. Fourth, instructions were given to the bank to restrict credit to the legitimate needs of business.

On July 1, 1927, the Bank of Italy had been established as the sole bank of issue, a step which greatly facilitated the carrying out of the financial programme. Italy was already suffering from a credit stringency and high interest rates, the official discount rate having been maintained at 7 per cent since July 18, 1925. Relying on its special position of prestige and independence, early in November, 1926, the government decided to dispose once and for all of the whole problem of the floating debt, amounting to over 20,000,000,000 lire, by making obligatory the conversion of all outstanding short-term treasury bills and all five- and seven-year bonds into new permanent 5 per cent consolidated bonds. At the same time the new bonds were offered for public subscription at 87.50 in order to replenish the depleted funds of the treasury. Although this was a form of repudiation of a specific obligation assumed by the State, the forced conversion was accepted with good grace, and, as a result of a nation-wide campaign conducted with great vigor, the public subscriptions to the new loan, which closed on Jan. 18, 1927, exceeded 3,000,000,000 lire.

The end toward which the government was striving was reached on the night of Dec. 21, 1927, when Italy returned to the gold standard. The abolition of the forced currency and the return of the lira to a gold basis was decided at a cabinet meeting on that date and came into force at once. The government's action came unexpectedly and caused much surprise in financial circles. The return to a gold basis was universally applauded as contributing to a settled state of finances and paving the way for greater prosperity in 1928. The value of the paper lira was fixed at 19 to the dollar, 92.46 to the pound sterling and 3.66 to the gold lira. During the cabinet meeting it was revealed that the stability of the Italian currency was guaranteed by a credit of $125,000,000 granted by 14 nations, among which the United States figured prominently.

The estimated revenues for 1927–28 were 21,200,000,000 lire and the estimated expenditures 21,130,000,000 lire, leaving an estimated surplus of 70,000,000 lire. Between July 1, 1926, and June 30, 1927, Italy's internal debt was reduced by the amount of 7,634,000,000 lire, as shown in the following table:

ITALY'S OUTSTANDING INTERNAL PUBLIC DEBTS, ON SPECIFIED DATES
[*In million lire* [a]]

Item	*June 30, 1926*	*May 31, 1927*	*June 30, 1927*	*Year's reduction*
Pre-war debts	12,448	12,419	12,398	45
National loans	35,997	36,049	36,053	56
5-year treasury bonds ..	1,672	1,140	1,140	532
7-year treasury bonds ..	4,000	4,000	4,000	....
9-year treasury bonds ..	6,836	7,311	7,312	476
3.5 per cent Venetian reconstruction bonds ..	1,075	1,217	1,214	139
4.36 per cent redeemable Austrian loan	10	10	10	....
Ordinary treasury bonds	17,832	15,209	15,209	2,623
Government notes	2,100	1,578	1,291	809
Bank-note currency issued on account of the treasury	6,729	4,229	4,229	2,500
Interest-bearing current account with the Government deposit and loan bank	1,128	237	247	881
Interest-bearing account at the National Bank for Social Insurance .	67	....	....	67
4.75 per cent bonds of 25 years	1,420	572	572	848
Total [b]	91,309	83,971	83,675	7,634

[a] The exchange rate of the lira on June 30, 1926, was $0.0361; on May 31, 1927, $0.0547; and on June 30, 1927, $0.0556.

[b] Official statements do not include results of Lictor loan operations.

COMMUNICATIONS. In 1925, 226,275 vessels of 60,168,624 tons entered at Italian ports and 226,167 of 60,057,276 tons cleared. The outstanding event in Italian transportation development of the past few years took place on Oct. 30, 1927, when the direct Rome-to-Naples railroad was opened to the public. This line, connecting the capital with the large southern seaport, is 215.8 kilometers in length, of which 34 kilometers are subterranean. The double track facilitates the movement of merchandise more cheaply, as the maximum elevation at any point of the line is 126 meters and the maximum ascent is ten meters per thousand. There are two tunnels more than 7000 meters in length and two more than 5000 meters long. The advantage of the new line is derived from the fact that it is 33 kilometers shorter than the Cassino-Caserta line, of which it is completely independent. The grades are very gentle, and the radii of the various curves are sufficiently great to enable a train to travel at its greatest velocity with safety. All grade-level crossings have been eliminated.

In compensation for the outlay of public funds for the railroad, a ministerial decree published Oct. 21, 1927, authorizes the following supplementary fare, called surtax, to be collected by way of experiment from passengers traveling on express trains on the Rome-Naples Mergellina line: (a) For first-class passengers and second-class passengers having tickets at the full fare, 25 lire and 15 lire; (b) for first-class passengers and second-class passengers having tickets at a reduced fare, 12 lire and 8 lire. The total length of state railways on June 30, 1926, was 10,299 miles.

ARMY AND NAVY. Liability to military service beginning at the age of 20 and lasting for 19 years is compulsory and universal. The strength of the active army in 1926 was 18,000 officers and 290,000 men. See MILITARY PROGRESS.

The accompanying table taken from one of the above mentioned sources shows the classification of the navy in 1925 and 1926:

	Completed at end of		
	1924	*1925*	*1926*
Battleships	5	5	5
Battleships for Coast Defense	2	2	2
Armored cruisers	3	3	3
Light cruisers	10	10	10
Flotilla leaders and destroyers	61	61	65
Torpedo boats	65	64	58
Submarines	41	42	44

See NAVAL PROGRESS.

GOVERNMENT. Executive power is vested in the king, who acts through a responsible ministry, and legislative power in the king and parliament, the latter consisting of two chambers: a senate, which on Jan. 1, 1924, had 387 senators and nine members of the royal family; and a chamber of deputies, with 535 members, elected on the basis of universal suffrage, male and female, and proportional representation. By the electoral law of Feb. 15, 1925, Italy reverted to the single member constituency system, which it was intended to put in force at the next election. The Chamber of Deputies elected in April, 1924, was divided among the political groups as follows: Fascisti, 375; Catholics, 39; other Constitutionalists, 45; Socialists, 46; Communists, 19; Republicans, 7; Slavs and Germans, 4. The King in 1927 was Victor Emmanuel III, born Nov. 11, 1869, who succeeded his father, King Humbert I, July 29, 1900. The cabinet as reorganized on Aug. 30, 1925, was as follows: Head of the government, Prime Minister, Secretary of State and Minister of Foreign Affairs, Minister of the Interior, Minister of War, Minister of Marine, Minister of Aëronautics, and Minister of Corporations, Benito Mussolini; Colonies, Luigi Federzoni; Justice, Alfredo Rocco; Finance, Count Volpi; Public Instruction, Pietro Fedele; Public Works, Giovanni Giuriati; National Economy, Giuseppe Belluzzo; Communications, Costanzo Ciano.

HISTORY

SITUATION AT THE BEGINNING OF THE YEAR. The Fascist hold on Italy was more than ever apparent throughout the latter part of 1926 and throughout the entire year 1927. By various decrees Mussolini strengthened his grip and forced his opponents either to flee the country or maintain a discreet silence. With regard to his future plans, a statement made in the Chamber of Deputies in the spring is of tremendous significance: "I must take upon myself the task of governing the Italian nation from ten to fifteen years longer. It is necessary. Instead of its 40,000,000 of to-day, Italy by that time should have 60,000,000. In this greater Italy legislative bodies will be elected through the corporative organizations of the State, there will be no room for a moribund democracy, and anti-Fascists, soon reduced to their last gasp, will cease to exist. The Fascist State neither needs nor brooks opposition."

Apparently one of the ways Mussolini expected to increase the population was by compelling all bachelors either to marry or pay a tax. As approved by the Cabinet early in February a very elaborate scheme was drawn up for the taxing of bachelors. It provided for a basic scale which all bachelors had to pay and also provided for a sliding scale of taxation in accordance with the income of the person taxed. According to the provisions of the basic tax, bachelors between 25 and 35 are compelled to pay a tax of 25 lire annually; between 35 and 50, 35 lire; and between 50 and 65, 25 lire. The extra tax would amount to about 5 per cent of the income tax already paid by the bachelor. Certain classes, such as priests, who had taken the vow of chastity, were exempt from paying the tax. Unofficial figures placed the number affected by the new measure at 1,700,000 and the expected annual income from this tax at approximately 100,000,000 lire annually.

Mussolini further strengthened his position by the enactment of several measures which sought to place the educational institutions of the country more completely under his control. As far as elementary education was concerned his chief move was the abolition of the Catholic Pioneers, an organization comparable to the Boy Scouts in the United States, in all towns under 20,000 population and the combining of the society with the Fascist Balilla, which might generally be called the Fascist Boy Scouts. The Pope protested the move although he accepted it as a fact, on the grounds that the Fascist Balilla was a political organization, while the Catholic Pioneers were not mixed up in politics at all. His suggestion that the education of the boys taken over by the Fascist organization should be continued by the priests was adopted by Mussolini.

Professors at all universities were required to take an oath supporting the present régime as well as to refrain from membership in any political party not in harmony with the aims of the State. Political manifestations against the government in any form were to be followed by dismissal. Another part of the same decree concerning professors declared that schools, colleges, and universities may be abolished if their teachings in any way were considered inimical to the welfare of the State.

Foreign Relations. In the historical sections of Albania, France, Bulgaria, etc., will be found a discussion of the far-reaching effects and results of Italian diplomacy throughout the year. Mussolini played a strong hand in the Balkans and in the Mediterranean Sea and caused new alignments of great importance throughout Europe, apparently without much thought for the League of Nations or for the spirit of the Locarno Pacts. Although made in the name of a treaty of friendship, the Treaty of Tirano (see preceding Year Book) was the signal for a mad scramble on the part of Jugo-Slavia to find a foil for Italy's ambitions in the Balkans. A discussion of this phase of Italy's foreign relations will be found in Albania, *History*. Mussolini's desires for Northern Africa are treated under France, *History*.

Relations with Labor. On April 21 the relations of Labor to Fascism were definitely outlined in a so-called Charter of Labor. As summarized in *Current History* (New York), for June (where the complete text of the charter is available) the following are outstanding features of the new charter. It consists of thirty articles and a preamble. The latter declares that labor, "which is a social duty, and property, which accomplishes a social function, are both under the guardianship of the State, since the State must control the whole body of production for the well-being of its citizens and the development of national strength." In order to accomplish this end all relations between capital and labor are carried out through collective contracts between the State-recognized groups of employers and employees. Each contract must definitely specify salaries, hours, and disciplinary rules. Other organizations, called corporations and acting as direct agents of the State, will make rules binding on both parties and attempt to settle disputes. In case of failure to do so, recourse may be had to specially created Labor Courts, whose decision is final. "The corporations, with the coöperation of both employers and employees, will control all social. educational, recreational and similar activities in industry, will guarantee health and morality conditions, and will handle accidents and maternal benefits as well as endowments and unemployment insurance." All employment agencies will be operated by the State, which will select men on the basis of ability.

The charter is opposed to a minimum wage or to absolute equality of wages in any single industry. Strikes, lockouts, boycotts, obstructionism and sabotage are absolutely forbidden, and where carried on for political motives are to be regarded as rebellion against the State. On the other hand, the workers' guarantees are "a six-day week, the number of hours not being defined, extra pay for night work and an annual paid holiday, civil and religious holidays when deemed possible, indemnity in proportion to the time of service in case of discharge and similarly to the worker's family in case of death, and the assurance of a position in case of short illness."

In regard to capital the charter declared: "The Fascist régime upholds the doctrine of private property and favors private initiative in the field of production, considering both functions in the national interest. The owner of a business or industry is responsible to the State for its production, but its employees also are responsible to the State in helping toward an increase in the value of the products and a reduction in their costs. When private initiative is insufficient or lacking, or when political interests dictate, the State may encourage, control or take over the management of the company, operating it through a corporation. Capital must share equally with labor the effects of crises and hard times, official statistics being used in judgment." All these provisions refer only to the organizations recognized by the State. Non-Fascist associations will be permitted to exist, but without power.

Parliamentary Reform. On November 11 the Fascist Grand Council proposed revolutionary changes in the parliamentary system of Italy. The preamble to the resolution reads as follows:

> Any system of national representation must be based on the de facto situation existing in Italy, namely, the abolition of all political parties contrary to Fascismo, the existence of only one political party which acts as the organ of the Fascista régime, and the juridical recognition of the nation's great productive economic organizations which are the basis of the Fascista syndicalist corporative State.
>
> The Fascisization of these syndicalist organizations, owing to the short period of time elapsed since their formation, is not sufficient, however, to permit them to assume the political functions of the Fascista Party by taking over the task of representing the nation in Parliament. It is possible for the present to permit them to proceed only one step along this road.

The text of the resolutions was as follows:

> The thirteen great economic organizations which include the whole mass of the Italian producers and workers will propose to the Grand Council a certain quota of candidates which will be later fixed.
>
> The Grand Council revises these candidates, possibly eliminating some in order to make certain that all possess a sure Fascista faith, and represent not only the specific interests' categories which designated them, but the superior interests of the national régime, which are not only economic.
>
> The Grand Council will complete with another quota of candidates the list proposed by the Government economic syndicalist organizations. At this point the list loses the fragmentary character it originally possessed, receives a national character and becomes the list which the Fascista régime presents to the voters.
>
> The list, which is above any single category, levelling them all in the single denominator of the Fascista Party, and which disregards all territorial divisions, can only be national. Therefore the whole territory of the nation is regarded as one single electoral constituency.
>
> The right to vote is not conferred on all citizens according to the old democratic system of universal suffrage, but only on those who, by paying their syndicalist dues, show they are active elements in the life of the nation, in addition to other categories, not specifically mentioned in the law on collective labor contracts, but which nevertheless are useful to the national collectivity.
>
> A system will be devised for giving representation to those organizations which, possessing de facto recognition, move within the orbit of the Fascista régime.
>
> The number of Deputies will be reduced from 560 to 400.
>
> The specific duties of the Chamber will be fixed later.
>
> The Senate remains as now composed, except for some reforms relating to its internal regulations.

As will be noted from the above resolution, an enormous political power will be wielded under the new system by the Fascist Grand Council, as not only will it select those candidates who must be designated by the political organizations, but it may also veto any candidate designated by the trade-unions. It is evident, therefore, that the Grand Council has a preponderant voice in the designation of all candidates. Inasmuch as Mussolini himself appoints the members of the Grand Council, it will be seen that he personally controls the entire parliamentary régime. This concentration of power in the hands of one man leads one to ask the question that has been on the lips of students of political science for some time, namely, "After Mussolini, what?" The death of "Il Duce" would most certainly cause this entire elaborate system to fall of its own weight, unless another strong man appeared on the scene.

Mussolini has stated on several occasions that he wished Fascism to be strong enough to continue after him, but one must take these statements with a grain of salt, when one considers that every move of the Fascist régime seems to place more and more power in the hands of Mussolini himself. Another angle of this concentration of power is the driving out of Italy of many men of brilliant minds, who have come into conflict with Fascism, or who are constitutionally opposed to its beliefs and methods. France, in particular, had become the home of hundreds of men of all shades of political and intellectual opinion, who are persona non grata to the present powers that be in Italy. Of course these voluntary exiles have been tried in Fascist courts for anything from treason to ingratitude and have been fined or sentenced to imprisonment, the punishment not being carried out by reason of their absence.

For Italy's return to the gold standard, see the section on *Finance* above. For other phases of Italian activities during the year consult the articles on Aëronautics; Arbitration; Peace and Peace Movements; League of Nations; etc.

IVEAGH, Edward Cecil Guinness. First Earl of. Irish manufacturer and philanthropist, died at London, England, October 7. He was born Nov. 10, 1847. He took his degree at Trinity College, Dublin, in 1870. His father, Sir Benjamin Lee Guinness, had died in 1868, and Mr. Guinness, with his elder brother, Sir Arthur Guinness (afterwards Lord Ardilaun) inherited the world-famed brewery which had been bought by their great-grandfather in 1759. Throughout his life Mr. Guinness (who became, in succession, a baronet, in 1885, Baron Iveagh, in 1891, Viscount Iveagh, in 1905, and Viscount Elveden and Earl of Iveagh, in 1919) took an active part in the conduct of the great brewing and other business interests to which he had fallen heir. He also devoted a large share of his time to his philanthropies, which were varied and very extensive. Especially notable were his efforts to improve the housing conditions of the poor in Dublin and London. He gave £250,000 to the Lister Institute of Preventive Medicine, in London, for the endowment of bacteriological research, and large sums to the hospitals of Dublin. From his youth he took a keen interest in the affairs of the Irish capital, and served as high sheriff of the city in 1876 and of the county in 1885. He was a generous benefactor of the University of Dublin, of which he was chancellor in 1908. Trinity College, Dublin, conferred on him the degree of LL.D. in 1891.

IVORY COAST. A French colony, forming a constitutent part of the government-general of French West Africa, situated between Liberia and the British Gold Coast. Area, about 121,976 square miles; population, estimated in 1926 at 1,724,545, of whom 1614 were Europeans. Bingerville is the capital and has an European population of about 94. The principal commercial products are mahogany, palm oil and kernels, cacao, dried and smoked fish, cotton, and rubber. Some gold has been found. In 1925 the imports amounted to 106,211,528 francs and the exports to 117,050,360 francs. The budget of the colony for 1926 was fixed at 29,500,200 francs. The ports of the colony are visited by several British, French, and Belgian steamship companies.

JACKSON, Holmes Condict. American physiologist and educator, died at New York, October 25. He was born at New York, Feb. 18, 1875. After graduation at the Sheffield Scientific School, Yale University, in 1896, and postgraduate work in the same institution, he studied in Germany, 1899–1900. In 1901 he became an instructor at New York University and Bellevue Hospital Medical College, and in 1902–05 was assistant professor of physiological chemistry there. In the latter year he went to the Albany, N. Y., Medical College as director of laboratories and experimental physiology, but he returned to the New York University and Bellevue Medical College in 1909 as professor of physiology. In 1925, when the New York Dental College was incorporated with New York University, Dr. Jackson was selected as dean. He was president of the Society for Experimental Biology and Medicine, and a member of other scientific associations. He wrote: *Manual of Physiological Chemistry* (1902); *Laboratory Exercises in Physiology* (1917).

JAMAICA. A colony of Great Britain, consisting of the island of Jamaica, which is the largest in the British West Indies, and the following dependencies: Turks and Caicos Islands; Cayman Islands; Morant Cays; and Pedro Cays. Area of Jamaica, 4450 square miles; of the dependencies, 224 square miles. Population of Jamaica, according to the census of 1921, 858,188, including 660,420 blacks, 157,223 colored; 14,476 whites; 18,610 East Indians; and 3696 Chinese; estimated population at the end of 1925, 916,620. The movement of population in 1925 was: Births, 31,567; deaths, 19,562; marriages, 3738. Kingston, the capital, had a population of 62,707 at the census of 1921. In 1925 there were 679 public elementary schools, with 117,874 pupils enrolled and an average attendance of 73,508. In 1925–26 the acreage under cultivation was 1,108,244 acres, apportioned as follows: under tillage 274,418; pasture, 833,826; sugar-cane, 44,086; coffee, 20,397; bananas, 71,380; coconuts, 42,039; cocoa, 5378; ground provisions, 57,780; mixed cultivation, 28,980; guinea grass, 99,733; commons, 683,062. The livestock included 136,523 cattle and 4699 sheep. In 1925–26 the imports were valued at £5,636,188 and the exports at £3,935,059. Chief among the exports were bananas, sugar, rum, coconuts, coffee, logwood extracts, cocoa, and logwood; among the imports, flour, cotton goods, and fish. Aside from an electric railway in Kingston, the only rail transportation on the island is the Jamaica government railway, with a length of 210 miles. Revenue in 1925–26, £2,021,046; expenditure, £2,009,593; public debt, £4,581,175. Governor in 1927, Sir R. E. Stubbs (appointed in 1925 and assumed office April 27, 1926).

JAMES, Walter Belknap. American physician, died at New York, April 6. He was born at Baltimore, Md., May 11, 1858. He graduated at Yale, 1879, and received his medical degree at the College of Physicians and Surgeons, Columbia University, New York, in 1883. He practiced medicine in New York for 44 years, and in addition was a member of the teaching staff of the College of Physicians and Surgeons from 1889 until his death—successively as clinical lecturer on medicine, instructor in general diagnosis, instructor in medical diagnosis, lecturer on the practice of medicine, professor of the practice of medicine. Bard professor, and professor of clinical medicine. He was visiting and consulting physician at several large hospitals in New York, and was also active in public affairs. Columbia conferred on him the honorary degree of LL.D. in 1904, and Yale in 1906.

JAMES, WILLIAM KNOWLES. American lawyer, president of the American Farm Congress and former president of the International Farm Congress, died at St. Joseph, Mo., November 11. He was born near Georgetown, Del., Aug. 20, 1852, and was graduated at Central College, Fayette, Mo., and at Yale, 1878. He was admitted to the Missouri bar in 1880, and practiced at St. Joseph. He was judge of the circuit court, 1898–1902, and was a member of the Missouri house of representatives, 1917–18. Among the causes in which Mr. James was active were the education of negroes, prison reform and the formation of farm bureaus in county, state and nation. He was president of the International Farm Congress, 1921–25, and was also president of the American Farm Congress.

JAN MAYEN. The isolated island of Jan Mayen, 70°N., 8°30′W., in the Greenland Sea has become a scientific outpost. Since 1920 it has been occupied by the Norwegian Geophysical Institute as a weather station, important in forecasting the violent storms which devastate the coast of Norway. Its force of three men, relieved annually, send daily to Norway by radio a detailed weather report, supplemented during the fishing season by a similar report from the Norwegian station of Mygbutken, on the east coast of Greenland.

JAPAN. A far eastern empire, consisting of the five main islands of Honshiu (mainland), Shikoko, Hokkaido (Yezo), and Formosa or Taiwan; also a number of smaller islands and island groups (approximately 4000 islands), and the peninsula of Korea or Chosen, and Karafuto, i.e. the southern half of the island of Sakhalin. Capital, Tokyo.

AREA AND POPULATION. The total area of the Japanese Empire is given at 260,707 square miles, made up chiefly as follows: Honshiu, 86,775; Korea, 85,228; Hokkaido, 30,275; Kiushiu, 15,588; Formosa, 13,840; Karafuto, 13,934; Shikoko, 7031; Kurile or Chisima Islands, 6024. In 1920 the total population of the Japanese Empire according to the census of that year was 76,988,379, distributed chiefly as follows: Honishiu (Japan proper), 55,963,053; Korea, 17,264,119; Formosa, 3,655,308; Karafuto, 105,899. The population of Japan proper, according to the census of 1925 was placed at 59,736,704. The movement of population in 1925 was: Births, 2,086,091; deaths, 1,210,706; marriages, 521,438; divorces, 51,687. The population of the principal cities at the census of 1925 was: Tokyo, 1,995,303; Osaka, 2,114,809; Kobe, 644,212; Kyoto, 679,976; Nagoya, 768,560; Yokohama, the port of Tokyo, 405,888; Nagasaki, 189,071; and Hiroshima, 195,731. On Apr. 1, 1927, nine towns and villages adjacent to Yokohama, containing a total population of 112,204, were incorporated in the city of Yokohama, thus making the population of that city 518,092. Among the towns included were two of considerable importance—Tsurumi, with a population of 53,135, and Hodogaya, with 28,570.

EDUCATION. Statistics on education given in the *Japan Year Book* cover the school year 1921–22, when there were 44,302 schools of all types, with 237,189 instructors, 10,737,957 pupils, and 2,040,300 graduates. There are five imperial universities, four public universities, and 16 private universities.

PRODUCTION. About three-fifths of the arable land is worked by peasant proprietors, the remainder by tenants. Although in general no later statistics for agriculture were available than those given in the preceding YEAR BOOK, some facts have been gleaned from *The Financial and Economic Annual* of Japan for 1926. The area under rice (1925) was 3,127,773 hectares and the production 107,698,282 hectoliters; barley 452,910 hectares, 15,922,634 hectoliters; rye, 545,248 hectares, 14,031,994 hectoliters; wheat, 465,045 hectares, 11,050,082 hectoliters; sweet potatoes, 286,455 hectares, 3,584,762 metric tons; sugar cane, 25,799 hectares, 958,894 metric tons; tea, 43,215 hectares, 35,776,759 kilograms. In the financial year 1925–26 the area under tobacco was 37,006 hectares and the production 64,663 metric tons. The number of domestic animals at the beginning of 1925 were: Cattle, 1,456,243; horses, 1,568,685; sheep, 15,710; goats, 157,852; and swine, 743,283.

Japan, as compared with the United States or the leading industrial nations of western Europe, is poor in minerals. While deposits of gold and silver have been known to the Japanese and worked by them for centuries, the only mineral substances of material importance at the present time are coal and copper. Lately some petroleum has been found in the northern portion of the main island but the supply is limited and does not meet the requirements of the country. The principal nonmetallic minerals produced in Japan, other than coal and petroleum, are sulphur, phosphate rock, arsenic, and graphite. The following table gives the latest figures for mineral production:

Mineral product	*Quantity*	*Value* *Yen*
Gold .... grams..	8,463,405	13,154,961
Silver .... do...	126,194,756	6,823,629
Copper .... kilos..	66,486,999	53,467,966
Lead .... do...	8,336,686	1,870,006
Pig iron .... metric tons	513,963	26,890,406
Steel .... do...	632,461	75,107,482
Iron pyrites .... do...	312,627	4,212,277
Coal .... do...	31,459,415	236,828,364
Sulphur .... do...	47,716	2,074,054
Petroleum .... hectoliters	2,955,691	16,835,930
Others	....	13,114,828
Total value	....	450,926,893

COMMERCE. According to the United States Bureau of Foreign and Domestic Commerce, the steady upward trend in Japan's foreign trade since the earthquake in 1923 was somewhat checked in 1926 by the general business depression during the latter part of the year and unsatisfactory conditions important foreign markets. The value of exports dropped to 2,044,721,000 yen from 2,305,589,000 in 1925, a decrease of 260,868,000 yen. Imports amounted to 2,377,476,000 yen, or 195,181,000 less than in the previous year. The unfavorable balance of trade, consequently, was larger than in 1925, the import excess actually totaling 332,755,000 yen, or an increase of 65,687,000 yen.

During the first part of the year export trade was more active than in the corresponding period of 1925, but the trade from July through December, the export season of Japan, was a decided disappointment. Exporters had been optimistic earlier in the year and anticipated large returns of trade, but as the year waned adverse conditions set in, principal industries became stagnant, demand in foreign countries declined, and the continued advance in the value of the yen was not conducive to increased exports. The following table shows imports and exports during 1925 and 1926 by principal commodities:

JAPAN'S TRADE, BY COMMODITIES, IN 1925 AND 1926
[*In thousands of yen*]

Item	*1925*	*1926*
EXPORTS		
Rice and paddy	9,218	1,799
Sugar, refined	32,255	34,027
Waste silk	31,036	16,804
Raw silk	880,740	735,152
Cotton yarns	128,118	70,717
Silk textiles	116,984	133,060
Cotton textiles	432,864	410,270
Knit goods	30,949	26,004
Potteries	35,271	33,190
Aquatic products	25,042	24,316
Iron and steel	7,843	3,636
Iron and steel manufactures	14,824	13,142
Machinery	9,929	9,224
Rubber tires	9,467	4,735
All other	546,049	529,145
Total	2,305,589	2,044,721
IMPORTS		
Rice and paddy	120,510	50,655
Wheat	70,521	93,849
Sugar	75,086	83,672
Oil cake	107,416	123,942
Raw cotton	923,356	725,985
Lumber	76,772	103,978
Woolen yarns	56,058	32,484
Iron and steel products	100,148	123,511
Oil, petroleum	18,221	11,921
Woolen textiles	57,491	29,268
Machinery and parts	89,404	90,686
All other	882,674	908,075
Total	2,572,657	2,377,476

The influence exerted on foreign trade by the high rate of exchange and other qualifying conditions mentioned is evidenced in the following table, which shows Japan's trade by principal countries:

JAPAN'S TRADE, BY COUNTRIES
[*In thousands of yen*]

Item	*1925*	*1926*
EXPORTS		
China	468,439	421,861
Kwantung Province	101,647	99,667
British India	178,418	155,951
Straits Settlements	44,905	41,497
Netherlands East Indies	85,557	74,754
Hong Kong	73,629	52,973
Philippine Islands	29,306	27,812
Great Britain	59,716	59,494
France	58,855	42,412
Germany	11,844	8,181
Italy	8,202	5,252
United States	1,006,258	860,881
Canada	20,838	24,754
Egypt	25,266	23,098
Australia	47,496	51,611
Hawaii	8,070	6,700
All other	82,153	87,873
Total	2,305,589	2,044,721
IMPORTS		
China	214,658	239,410
Kwantung Province	176,596	157,034
British India	573,564	391,136
Straits Settlements	37,004	39,872
Netherlands East Indies	108,373	103,077
French Indo-China	48,720	24,520
Asiatic Russia	14,678	23,884
Philippine Islands	16,700	18,714
Siam	23,735	14,358
Great Britain	227,292	170,275
France	33,377	24,545
Germany	123,819	145,221
Belgium	11,940	14,241
Switzerland	20,775	21,819
Sweden	12,067	13,947
United States	665,992	680,186
Canada	37,132	63,929
Chile	5,344	8,690
Egypt	32,631	31,959
Australia	149,969	128,396
All other	43,291	62,263
Total	2,572,657	2,377,476

Recessions are noted in exports to all important countries, with the exception of Canada and Australia. Few changes occurred in the relative positions of the various countries in the export trade. The United States continued to hold first place, accounting for 860,881,000 yen, or 42 per cent, of the total exports. China maintained the leading position in Japan's exports to Asiatic countries, and, considering the many factors affecting this trade, the decline of 46,678,000 yen is slight. Exports to all European countries were lower, the value of shipments to France being reduced principally by the low price of raw silk.

Effects of the general business depression in Japan that marked the close of 1926 and continued in the early part of 1927, followed by the financial crisis in April, were clearly evidenced in Japan's returns of foreign trade for

JAPAN'S FOREIGN TRADE BY PRINCIPAL COMMODITIES
[*In thousands of yen*]

Item	*First 6 months of—*	
	1926	*1927*
EXPORTS		
Rice and paddy	990	564
Sugar, refined	13,200	14,813
Waste silk	9,256	6,974
Raw silk	317,801	360,084
Cotton yarns	45,476	21,710
Silk textiles	64,949	65,506
Cotton textiles	213,725	178,119
Knit goods	12,808	12,278
Potteries	17,845	13,895
Aquatic products	10,572	7,503
Iron and steel	1,875	1,466
Iron and steel manufactures	8,148	6,260
Machinery	4,738	5,358
All other	273,015	255,039
Total	993,893	949,064
IMPORTS		
Rice and paddy	25,438	62,436
Wheat	71,188	34,818
Sugar	32,282	41,328
Oil cake	96,889	84,070
Raw cotton	490,685	390,264
Lumber	50,208	43,412
Woolen yarns	17,632	15,708
Iron and steel products	69,216	62,284
Oil, petroleum	9,587	6,611
Woolen textiles	15,435	12,874
Machinery and parts	47,649	42,161
All other	473,495	450,345
Total	1,399,204	1,246,806

the first six months of 1927. Both imports and exports declined, so that the total foreign trade of 2,195,371,000 yen was the lowest since pre-earthquake years. Details of Japan's foreign trade by principal commodities are given in the accompanying table, on page 426.

FINANCE. Japan went through the throes of a severe financial panic in the spring of 1927. Although the financial situation was attributed largely to the consequences of the earthquake of 1923, the actual causes can be traced to the post-war economic depression, the effects of which are still felt by the industries and commercial concerns of Japan. It came in the wake of the industrial expansion stimulated by the World War, and caused a serious setback to the then increasing trade and commerce of the country. Japan's balance of trade, which during the War registered an average of more than 300,000,000 yen a year, turned into a heavy "unfavorable" balance. The gains made by industrial and commercial concerns were lost during the depression and numerous banks were left with huge amounts of frozen credits. Japan's gold reserve began to dwindle; its currency—which appreciated during the War as a result of the extraordinary balance of trade—began to decline. After the great earthquake the yen reached its low point of $0.38 (par $0.4985). It has been estimated that the earthquake destroyed one-eighth of Japan's national wealth. Japan's industries suffered material losses approximating 2,000,000,000 yen, which increased the amount of frozen credits held by banks as a result of the economic depression. Since the earthquake of 1923 the industries have been affected by losses in the China market owing to military activities there, as well as the boycott of Japanese goods in 1925. More recently there has been a rather serious decline in the prices for raw silk, due somewhat to the competition of rayon, but perhaps more to conditions in the industry itself.

It was originally provided that the earthquake bills should be liquidated by Sept. 30, 1925. On the approach of that date, it became evident that such liquidation was impossible so an extension was authorized for two years. Doubt as to whether the bills could be paid up or written off before that date was voiced by the Finance Minister in the Imperial Diet in January, 1927.

His measure was passed providing for an issue of 5 per cent government bonds for the estimated full amount of the bills, 207,000,000 yen. Of this amount 100,000,000 yen go to the Bank of Japan as a guaranty against losses on earthquake bills. The necessary relief was thus provided, but the parliamentary debates alluded to the difficulties of various banks and caused a run on them. Early in April, Suzuki & Co. (Ltd.) failed. This company was one of the foremost importers and exporters of Japan and was interested in numerous Japanese industries. Its heaviest creditor was the Bank of Taiwan, which suspended. As the Bank of Taiwan is a semi-government institution, it was at first felt that the government might be inclined to come to its rescue, as it had in the past.

The Privy Council, which controls the reins of government while the Diet is not in session, objected to the Cabinet's proposal to advance funds for the Bank of Taiwan, and accordingly the Wakatsuki Ministry resigned. This brought to power the Seiyukai party, previously the opposition party with Baron Tanaka at its head. It promptly declared a three-day "bank holiday" and a three-week moratorium, beginning April 22.

However, before the moratorium was declared the financial crisis was relieved by an enormous issue of paper money by the Bank of Japan. The note issue, which before the financial troubles became acute amounted to 1,228,000,000 yen as against a gold reserve of 1,074,000,000, was increased on April 20 to 1,626,000,000 yen, and on April 25 it had grown to 2,651,000,000 yen. The reserve ratio of the Bank of Japan, which had been rather high, was considerably lowered.

The following table gives a summary of the budget estimates for the year ending Mar. 31, 1927:

Revenue 1926–27 ORDINARY	*Yen*
Land tax	57,532,545
Income tax	207,075,361
Business tax	59,477,601
Liquor tax	207,261,621
Sugar excise	74,385,127
Tax on textile fabrics	85,294,916
Customs duties	105,381,254
Total taxes[a]	805,060,963
Stamps	83,685,759
Public undertakings and State property	446,938,264
Total ordinary (including other receipts)	1,365,490,995
Extraordinary revenue	232,800,790
Total revenue	1,598,291,785
Expenditure 1926–27 ORDINARY	*Yen*
Civil list	4,500,000
Foreign Affairs	15,911,515
Home Affairs	41,505,462
Finance	296,684,177
Army	168,435,980
Navy	126,672,005
Justice	29,045,000
Instruction	103,752,440
Agriculture and Forests	25,256,191
Commerce and Industry	3,887,103
Communications	260,820,503
Total ordinary	1,075,470,376
Extraordinary revenue	282,800,790
Total revenue	1,598,291,785

[a] Including all items.

The 1927–28 estimates called for revenues of 1,569,736,000 yen and expenditures of 1,730,373,000 yen. The total public debt on Mar. 31, 1926, was 4,999,176,360 yen.

COMMUNICATIONS. The number of vessels entering the ports of Japan during 1925 was 14,755 of 43,030,927 tons; cleared, 14,838, of 43,067,456 tons.

The financial results of operation of the government railways of Japan for the year ending Mar. 31, 1926, showed a surplus of $110,691,495, an increase over the previous year, when the surplus amounted to $102,349,294. The net in 1926, after deducting from the surplus of revenue over operating expenses, the subsidies to private railways, interest charges and additional operating expenses, was $71,629,343. In 1926 the total mileage operated by the government railways showed an increase of 276.8 miles over the preceding year, an increase in the average mileage operated of 257.7 miles. The number of passengers carried increased 6.5 per cent in 1926 over 1925, and freight tonnage carried increased 2.7 per cent. A number of improvements in service were made in 1926, among which were the addition of new sleeping cars, special express service, and reductions in rates for teachers and students. Because at the beginning of the fiscal year there was a slump in passenger traffic, believed to be due to a general decline in business, several measures were adopted to increase passenger traffic. Special train service was arranged to points of interest, such as noted shrines, temples and sport centres, which large throngs of people were expected to visit, and special low rates for parties of passengers were given to these points.

To facilitate and increase movement of freight, rates in effect were revised during the year. Rates for shipment of freight between the main island and Hokkaido were reduced due to the establishment of a through service on this freight, thereby eliminating extra charges for reloading. New equipment added during 1926 included 157 new locomotives, consisting of 49 6-wheel type for passenger service, 95 8-wheel type for freight service, five 8- to 12-wheel type, and eight 8-wheel electric locomotives for use in freight service. A number of freight cars, or goods wagons, were added to the service to handle increases in shipments of several classes of freight, particularly livestock and coal.

Army and Navy. Military service is universal and compulsory. Liability commences at 17, but actual service begins at 20 years and lasts for 20 more. The peace strength of the active army in 1926 was 235,056. The military budget for 1925–26 amounted to 1,615,406,000 yen. See Military Progress; Naval Progress.

The following table from the *Statesman's Year Book* for 1927 shows the classification of the Japanese fleet for the three years ending with 1926:

	Completed at end of		
	1924	*1925*	*1926*
Battleships and battle cruisers	10	10	10
Armored cruisers	7	7	7
Aircraft carriers	1	1	1
Cruisers	18	22	24
First-class gunboats	4	4	4
Destroyers[a]	81	86	100
Submarines	54	60	68

[a] The destroyers are 49 first-class, 51 second-class.

Government. Executive power is in the emperor who acts with the advice and aid of a ministry appointed by and responsible to himself; legislative power is in the emperor and an Imperial Diet of two chambers, namely the Upper House or House of Peers, composed of membership based on rank, wealth, and other qualifications, and numbering at the beginning of the year 399; and the Lower House or House of Representatives, elected for four years and numbering at the beginning of the year, 464. Emperor in 1927, Hirohito, born Apr. 29, 1901; succeeded his father, Yoshihito, Dec. 25, 1926. The cabinet at the beginning of the year was composed as follows: Prime Minister, Reijiro Wakatsuki; Home Affairs, Kenzo Adachi; Foreign Affairs, Baron Shidehara; Finance, Chokuon Kataoka; War, General Ugaki; Marine, Admiral Takarabe; Justice, Yoku Egi; Education, R. Okada; Agriculture, C. Machida; Commerce, I. Fujisawa; Communications, K. Adachi; Railways, Viscount Inoue.

History

Situation at the Beginning of the Year. At the beginning of the year the situation in Japan was serious from the economic point of view. Money was scarce and the trade balance was extremely unfavorable, attributable in part to the earthquake of 1923 and the appreciation of Japanese exchange. The situation in China seriously affected Japan, and the success of the Nationalists under Chiang Kai-shek caused Foreign Minister Shidehara to contemplate the possibility of giving up Japan's friendship for the Peking overlord, Chang Tso-lin, and casting her lot with the southern government. Affairs in China naturally focused attention on Russo-Japanese relations which were exceptionally cordial, a cordiality which was concretely expressed in terms of valuable oil, timber, and fisheries concessions in Northern Sakhalin and elsewhere. On March 7, Japan suffered from another severe earthquake shock in the prefecture of Kyoto, in which almost 3000 were killed and a greater number wounded. Several small towns and villages were destroyed and the cities of Osaka, Kobe, and Kyoto, while practically undamaged, were severely shocked.

The Financial Crisis. As noted above under *Finance*, Japan suffered a severe financial crisis in the spring of the year. Signs that it was surely coming had been prevalent from the very beginning of the year. Several banks and business houses had failed. The panic was brought to a head with the failure of the Suzuki Company, Ltd., which probably conducted one-fourth of the entire foreign trade of Japan. The failure occurred on April 5, and was followed by a rapid disintegration of the entire business of the concern which was scattered throughout the entire empire. According to many financial experts the cause of the crisis can be laid directly at the doors of the earthquake of 1923. The liabilities were placed at $250,000,000. One of the principal creditors of the concern was the Bank of Taiwan, a semi-official organization, which failed to get an advance of 200,000,000 yen from the government to tide it over its difficulties. As a direct result of the panic the Wakatsuki cabinet resigned.

On April 18, a new cabinet was formed under the leadership of Baron Tanaka, the head of the Seiyukai party. He had formerly held the post of Minister of War, and at the time of the crisis was the leader of the Opposition. He was placed in the rather anomalous position of heading a cabinet which did not control a parliamentary majority. His government was made up as follows: Prime Minister and Minister of Foreign Affairs, Baron Tanaka; Home Minister, K. Suzuki; Naval Affairs, Admiral Okada; Army, General Tsuno; Justice, Y. Hari; Finance, K. Takahashi; Education, S. Mitsushi; Railways, H. Ogawo; Agriculture, T. Yamamoto; Communications, N. Mochizuki; Commerce and Industry, T. Nakahashi.

The new government announced that it would take a much stronger position in relation to finance and the protection of its citizens in China than its predecessors had done. A three weeks' bank moratorium was declared and efforts were made to strengthen the Bank of Japan. In a speech on April 22, Baron Tanaka stated that his aim was to ameliorate the economic unrest, and, on the basis of the fundamental policy of the industrialization of Japan, to renovate administrative methods, improve education, decentralize administration, develop agrarian districts, enforce social policies and maintain the sanctity of the Imperial power. He urged Japan to adopt improved policies for the protection of her interests and prestige which were seriously threatened by the Nationalist advances made in China, during the course of which Japanese interests were attacked, her nationals killed, and her flag sullied. Viscount Korekiyo Takahashi resigned on June 2 as Finance Minister and was succeeded by Chuzo Mitauchi, former Minister of Education. The reason ascribed was the advanced age of Takahashi and the fact that he expected to remain in office only during the time of severe crisis.

Situation at the End of the Year. The Diet was opened by Emperor Hirohito on December 26 with a formal speech. The next day it passed unanimously a bill to cover the coronation expenses of the Emperor and then adjourned until Jan. 18, 1928. This recess was expected to be filled with all kinds of political maneuvers on the part of the government and opposition parties. Neither party held an absolute majority in the Diet and each one was expected to attempt to break up the smaller parties and attach the members of these minor groups to one of the major parties. As noted above the Opposition party was in a majority, and if it could hold its members it could overthrow the majority when the Diet reassembled. On the other hand if the Government party could succeed in gaining twelve more votes it could defeat a no-confidence vote and doubtlessly control the entire session of the Diet. If the Government party were to be defeated in January another election must be held immediately, but if a defeat were averted, an election need not come until the Summer and the party could remain in power until the end of 1928.

As reported in the *New York Times*, the hazardous position in which the Japanese government and Diet would be placed when the latter came together for business in January, 1928, might be gathered from the fact that ever since the financial crisis of the Spring of 1927 the Seiyu Honto whose adhesion to the government for the last two years had made possible a Kensei Kai Administration, had shown signs of drifting toward the Opposition. Until the crisis, these two parties gave the government together a vote of 261 (Kensei Kai 163 and Seiyu Honto 98) out of a total representation of 464 deputies. The Opposition, then made up of the Seiyu Kai with 136 deputies and the Dooko Kai with 26, had a total of 162, with scattering votes from the Sin Sei Kai's 26, the Business Men's Party of nine and the Independents with six.

Even with smaller parties uniting with the Opposition, the government in 1926 could usually show a majority of 58 votes. But at the end of 1927 it was admitted that the 98 of the Seiyu Honto had been cut in half, with possibly 49 deputies voting with the Opposition (which, as noted above, formed the cabinet after the financial crisis). On this division the vote would stand, presuming that the Opposition could hold the smaller parties, Government 212, Opposition 252. Advices from Tokio, however, showed that the Seiyu Honto was not sufficiently against the government to wish to overthrow it, particularly if an overwhelming defeat should make necessary a new election; also that the government could probably count on the Sin Sei Kai and the Business Men's party in the emergency. This was the probable explanation of how 12 votes added to the government's support would turn the tide in its favor.

JAPANESE BEETLE. See Entomology, Economic.

JEBEL Shammar. See Arabia.

JEFFERY, Edward Turner. American railway official, died at New York, September 24. He was born at Liverpool, England, Apr. 6, 1844, and was taken to the United States in 1850. He entered the employ of the Illinois Central R. R. as an office boy, and studied drafting and engineering at night. In 1877, after several promotions, he became general superintendent of the Illinois Central system, and in 1885 general manager. In the same year he represented the road at the International Railway Congress in Brussels, and was the only American delegate. In 1889 he visited the Paris Exposition in quest of information for use in connection with the projected World's Columbian Exposition (held in 1893), and for a time he was chairman of the committee on buildings and grounds of the latter exposition. From 1891 to January, 1912, when he retired, he was president of the Denver & Rio Grande R. R., and he retained his connection with the company, as chairman of the board of directors, until January, 1917, when he retired from all official activities save directorships in various corporations. Concurrently with his presidency of the Denver & Rio Grande R. R. he was an official of several other railroad corporations.

JEROME, jĕr′ŭm, Jerome Klapka. British novelist and playwright, died at Northampton, England, June 14. He was born at Walsall, England, May 2, 1859. He studied at the Philological School, Marylebone, London, but the death of his father required him to become a wage earner when he was 14. He was for a time a clerk in a railroad office, and later an actor in London and a member of traveling theatrical companies. At the end of three years he returned to London and engaged in journalism as a reporter. Next he tried teaching, but in that profession and in various business occupations he achieved little success. In the meantime he was putting out stories and plays that brought him little fame or money. However, in 1889, he won the public attention with *Idle Thoughts of an Idle Fellow* (2nd ser., 1898), and in the same year with *Three Men in a Boat*. In the latter the humorous element predominated, although it contained also considerable philosophizing and description of Thames scenery. It fixed Jerome's place among the most popular authors of the time. A sequel to the book, *Three Men on the Bummel*, with the scenes laid in Germany, was also popular in England and in Germany.

From 1892 to 1897 Jerome edited, with Robert Barr, *The Idler*, and from 1893 to 1897 *To-Day*. A libel suit involving him in heavy costs ended his career in journalism; while he was engaged in the profession he helped to bring out several prominent authors, among them Robert

Louis Stevenson, Barry Pain, W. W. Jacobs, Anthony Hope, Richard Le Gallienne, Israel Zangwill and Eden Philpotts, as well as Phil May and Aubrey Beardsley, illustrators.

Jerome wrote good comedies and farces, *Barbara* (1886); *Sunset* (1888); *Wood Barrow Farm* (1891); *New Lamps for Old* (1890); *MacHaggis* (1897); *Miss Hobbs* (1900); *Susan in Search of a Husband* (1906) and others. His greatest stage success was *The Passing of the Third Floor Back,* in which Sir Johnstone Forbes-Robertson starred for several seasons, in England and America. Its simple humor and religious sentiment appealed to the theatregoing public, although some cynical critics found it somewhat too naïve for their tastes.

Jerome's *Paul Kelver,* an autobiographical novel published in 1902, is considered one of his most artistic books. Shortly before his death he published *My Life and Times,* an autobiography. During the War he was active, despite his years, as an ambulance driver on the Verdun front. The labors broke down his health, and he returned to England to become an advocate of a negotiated peace. After the War he engaged in a controversy with Sir Arthur Conan Doyle over the belief of the latter writer in spiritualistic manifestations. Jerome paid three visits to the United States.

JERUSALEM. See ARCHÆOLOGY.

JEWS. STATISTICS. The accompanying table, showing the Jewish population of the world, is taken from the *American Jewish Year* for 1927–28. Of the 14,780,000 Jews found in the world, more than two-thirds live in Europe, and over 26 per cent live in North and South America. Asia, Africa, and Australasia together have but 8.9 per cent, as follows: Asia, 3.8; Africa, 3.9; Australasia, 1.1 per cent.

A LIST OF THE COUNTRIES OF THE WORLD AND THEIR JEWISH POPULATION

Name of country	*Number of Jews*
Abyssinia	50,000
Aden and Perim	3,747
Afghanistan	18,135
Alaska	500
Algeria	100,000
Arabia	25,000
Argentina	200,000
Australia	21,615
Austria	350,000
Belgium	44,000
Brazil	21,000
British Empire	514,442
British Malaya	703
Bulgaria	43,232
Canada	126,196
Chile	2,000
China	12,000
Congo (Belgian)	177
Crimea	51,516
Cuba	8,200
Curacao	565
Cyprus	195
Czecho-Slovakia	354,342
Danzig	9,239
Denmark	5,947
Dominican Republic	55
Egypt	59,581
Esthonia	4,566
Finland	1,618
France	200,000
France and possessions	551,000
Germany	615,000
Gibraltar	1,123
Great Britain	297,000
Greece	125,000
Hawaii	77
Hong Kong	150
Hungary	473,310
India	21,778
Indo-China (French)	1,000
Iraq	87,488
Irish Free State	5,148
Italy	50,000
Jamaica	1,250
Japan	1,000
Kenya	100
Kirghizia	2,120
Latvia	95,675
Libya	20,000
Lithuania	155,125
Luxemburg	1,353
Malta	35
Mexico	16,000
Morocco (French)	117,512
Morocco (Spanish)	18,000
Netherlands	150,000
New Zealand	2,380
Norway	1,457
Palestine	157,800
Paraguay	400
Persia	40,000
Philippine Islands	500
Poland	2,854,000
Porto Rico	200
Portugal	1,000
Portuguese East Africa	100
Portuguese East Africa (Mozambique)	100
Rhodesia (Northern)	110
Rhodesia (Southern)	1,289
Rumania	900,000
Russia (R. S. F. S. R.)	518,260
Russia (R. S. F. S. R.) in Europe	2,662,139
Russia (U. S. S. R.)	2,820,429
Russia (U. S. S. R.) in Asia	114,953
Saar Region	5,000
Serb-Croat-Slovene State	64,159
Siberia	44,725
S. W. Africa	200
Spain	4,000
Surinam (Dutch Guiana)	818
Syria and Lebanon	35,000
Sweden	6,469
Switzerland	20,979
Tanganyika (German East Africa)	10
Tangier Zone	12,000
Trans-Caucasian Rep.	57,608
Tunisia	65,000
Turkey in Asia	70,000
Turkey in Europe	120,000
Ukraine	1,795,540
Union of South Africa	62,103
United States (Contin'l)	3,600,800
United States and Possessions	3,602,220
Uruguay	150
Uzbek Republic	25,683
Venezuela	411
Virgin Islands	70
West Russia (Gov't of Witebsk)	115,613
White Russia	395,184

IMMIGRATION. Jewish immigrants during the past years went chiefly to Palestine, the United States, Canada, Argentina, and Brazil. The most important fact during the past year was the falling off of the number of Jewish immigrants to Palestine, from 35,000 in 1925 to 13,080. The following figures are taken from the *American Jewish Year Book:*

CHIEF COUNTRIES OF JEWISH IMMIGRATION

Palestine (1926)	13,080
United States (1926)	10,267
Argentina	6,920
Brazil	3,500
Canada	3,587

During the period 1908–26, 1,029,145 Jews had been admitted to the United States, or 9 per cent of the total immigration. Departures in the same period totaled 53,000.

Zionism. The history of Zionism was marked by considerable uncertainty during the year. In the Atlantic City meetings (June 26–28) of the Zionist Organization of America marked criticism was expressed of the administration of President Louis Lipsky. A determined minority, headed by Mr. Israel Goldberg, centred its attacks on the financial administration, charging extravagance and losses in several ambitious projects, notably that of the American Zion Commonwealth. The machine was too well disciplined, however: while the charges were admitted in effect no blame was attached to President Lipsky's administration and he and Miss Henrietta Szold, vice president, were reelected unanimously.

The Fifteenth Zionist Congress, held at Basle, Switzerland (August 30–September 11), fared no better. The scene should have been propitious; here it was, 30 years previously, that the Zionist movement was born; Palestine had become a fact. But in the wrangling that took place among the Rights (Mizrachi), Lefts (Revisionists) and Centrists, and in the dissatisfaction expressed against the mandatory power (England), it was obvious that all was not peace in Zion. Nahum Sokolow was elected President of the Congress. Dr. Weizmann, head of the Zionist Executive, found himself severely censured for the present economic depression in Palestine. Dr. Stephen S. Wise, American Zionist leader, led a concentrated attack on the character of the Palestinian government as administered by the mandate power, England. The Revisionists expressed their dissatisfaction with the proposed Jewish Agency which was to be established as a result of an agreement made between the Zionists and the non-Zionists earlier in the year. The first real break came when Dr. Stephen S. Wise, made chairman of the important Political Committee, resigned and left the Conference when it appeared that a resolution, calling for a conference with Great Britain on a redefinition of the "Jewish Homeland" idea, and supported by Wise, Philip Guedalla and others, was being frowned on by Lipsky, head of the American delegation, because Weizmann was regarding it as a personal affront. Dr. Weizmann defended the conduct of his administration on September 4. He declared his confidence in Great Britain, pressed for the acceptance of the Agency plan though it meant the inclusion of non-Zionists, and expressed himself as ready to go if the Congress did not see fit to follow his programme of a slow but steady development for Palestine. Weizmann was supported. The Jewish Agency, whose purpose was to act as a public body with advisory capacities to aid the Palestine government in the upbuilding of the Jewish national home, was approved. The following persons were elected to the Executive of the Agency: Miss Henrietta Szold, Mr. Harry Sacher, and Col. Frederick Kisch.

This action was considered a triumph for the centre bloc, of which the American delegation constituted the main strength. It appears that a deal was made with the Labor delegates with the result that they refrained from voting. Dr. Chaim Weizmann was reëlected President for the next two years and a budget of £632,000 for the World Zionist Organization was voted. The Political Committee's resolution on the Palestine government, as finally presented, expressed its trust in the good faith of the mandatory power but enumerated specific economic grievances to indicate that Great Britain was not exerting its full effort to facilitate the upbuilding of the Jewish homeland.

Dr. Wise's attack on the mandatory power came to the fore at the Cleveland Conference of the United Palestine Appeal (October 29). A resolution, similar in tenure to that of the Political Committee, was passed after Dr. Wise had delivered an outspoken attack on Great Britain, criticizing particularly its economic policies. Four English statesmen, in messages to the Conference, reaffirmed the terms of the Balfour Declaration. These were Balfour, Viscount Cecil, Lloyd George, and Smuts. The United Palestine Appeal voted to raise $7,500,000 for 1928 for its Palestinian programme.

Henry Ford's Recantation. One of the most significant events in the year's history of Jewry was Henry Ford's public apology for the seven-years' persecution his paper, the *Dearborn Independent,* had been waging against the Jews. The announcement was made July 8 in the publication of an interchange of letters between Henry Ford and Louis Marshall. The step on Mr. Ford's part had not been entirely unexpected. In the spring of the year Aaron Sapiro's one-million dollar suit for libel against the Detroit manufacturer had come to trial. Ford's paper, in attacking Mr. Sapiro's work among the agricultural coöperatives, had charged him with being a tool of that group of "international Jews" whose purpose was the financial domination of the world. Mr. Sapiro was waging a very successive battle when a mistrial of the suit was declared.

It was the publicity attending on these events that led, probably, to Mr. Ford's apology. It soon became known that the statement was prepared for him by Louis Marshall or somebody close to him, and that Henry Ford signed it unhesitatingly. Mr. Ford's statement declared: That his trust had been violated by reliable employees who were responsible for the articles written over his name; that he was convinced that the so-called "Protocols of the Wise Men of Zion" were "gross forgeries" in indicating that the "Jews have been engaged in a conspiracy to control the capital and the industries of the world"; that he sought the forgiveness of the Jews for the wrong done them, assuring them that henceforth they might regard him as a friend. There was considerable speculation as to the rôle Ford really played in the world-wide dissemination of the spurious "Protocols" after the *Dearborn Independent* had printed them. A former editor of his paper charged that Ford had been aware of the campaign of vilification all along, encouraging it in order to take advantage of rural anti-Semitic sentiment when he was a candidate for the presidency in 1920. Another report had it that the apology was made on the urging of Edsel Ford who had sought to invest a large sum of money in Palestinian mortgages, but who had been spurned because of his father's anti-Semitism. It was generally charged that Ford's recantation was prompted by a desire to elicit Jewish good will for his new motor car. The probable reason is perhaps the simplest; that Henry Ford was duped by retainers whom he had to trust implicitly because his own knowledge of the world was a surprisingly sketchy one.

The Jews were generous in their response. Though they pointed out the damage done had been incalculable by reawakening anti-Semitism in Central Europe, they assured Ford that his apology was accepted in the spirit in which it had been made, as an "amende honorable." Mr. Ford followed this first step by several others: He made a financial settlement with Aaron Sapiro and also promised to support his agricultural coöperative marketing projects; and he settled with Herman Bernstein, who too had been suing Ford for libel. To Mr. Bernstein he promised he would do everything in his power to check the circulation of the pamphlet called the *International Jew* which was made up of the *Dearborn Independent* articles.

Trial of Petlura's Slayer. Another event in the history of Jewry to attract universal attention was the acquittal, by a Paris jury, October 26, of Samuel Schwartzbard, the slayer of Petlura, ex-president of Ukrainia in 1918–20. Schwartzbard, a French war veteran, had long brooded on the wrongs done his people by Petlura in the terrible Ukrainian massacres of 1918–20 when fully 50,000 Jews had been slain, and had finally sought vengeance in the killing of Petlura. This he had done in Paris early in the year. Schwartzbard's trial turned into an examination of Petlura's responsibility. At first the defense announced it would summon the most prominent leaders of the thought of continental Europe who would indicate the abhorrence with which they had received the story of the Ukrainian pogroms; but later it contented itself with the summoning of eye-witnesses. These told the story of the murders: that they had been committed by Ukrainian soldiery and not bandits; that Petlura's officers witnessed, if they did not direct the outrages, that Petlura's attention had been repeatedly called to what was taking place, and that because no word was given to check the killings, they must have been performed with Petlura's connivance. The prosecution tried to prove that Schwartzbard was an agent of Soviet Russia and that Petlura's death was due to a fear that he was to embark on an offensive against the Soviet State. The acquittal of Schwartzbard by the jury after 35 minutes' deliberation indicated that the French were amply convinced of Petlura's responsibility for the pogroms, and Jewry interpreted the verdict as a belated but welcome expression of non-Jewish sympathy.

Central European Relief. During the year there was heard repeatedly dissatisfaction with the manner in which the Joint Distribution Committee was carrying out its program of rehabilitating the Jews of central Europe. It will be recalled that this American organization had, in 1926, begun the collection of a fund of $25,000,000 for the economic restoration of the Jewish war victims of Poland, Russia, etc. Louis Fischer in a series of notable articles in the *Menorah Journal* charged the Joint Distribution Committee with a short-sighted policy in Poland. They were spending money on doles instead of on fundamental industrial projects; their agricultural and immigration policies were unsuccessful; their administration both in Europe and America was high-handed. It must be confessed that the Joint Distribution Committee's replies were not entirely successful in allaying uneasiness. In September, an attack was launched from a more authoritative source. Max Steuer, a prominent New York attorney, returned from Europe with charges of great losses in relief funds, before 1925, as a result of uneconomical handling. It was his contention that fully 40 per cent of the funds collected had been squandered by exchange manipulations. The remainder had been used, as Mr. Fischer had said, for temporary relief measures and not toward the solution of the Polish Jewish economic problem. The policy of doles was in fact, still in continuance.

These charges had the merit of opening a general discussion and for the first time the Joint Distribution Committee issued a statement of particulars. It did not, however, make public a financial report. The Joint Distribution Committee's report (signed by Felix M. Warburg, Herbert H. Lehman, and Paul Baerwald) contained the following: During the period October, 1924—December, 1926, a total of $63,362,685 had been spent in Europe, of which $23,000,000 had gone to Poland. During the period 1919–21, the work was frankly of a relief nature. Over this period, and in fact up to 1925, the zloty continually declined, going from 800 to 250,000 to the dollar. The Joint Distribution Committee knew of this situation. It was confronted by the dilemma: Should it cease its work because the zloty was declining and so much money would be lost, or should it go ahead with its rehabilitative programme regardless? The latter move was decided on in 1922, and the programme continued along relief lines, though a reconstruction programme began to emerge after the summer of 1921. This was on five lines, viz., refugee, child care, medical, reconstruction, and cultural activities. For this work, $6,350,000 had been spent to Dec. 31, 1926.

There were other statements forthcoming at the meeting of the Joint Distribution Committee called in October at Chicago. Dr. Joseph A. Rosen, head of the Jewish agricultural settlement work in the Ukraine, White Russia, and the Crimea, reported on the success of the activities to that date. He declared that there were 35,519 Jewish families established as pioneer farmers in 160 new colonies. These were occupying 250,993 acres in the Ukraine, 52,027 acres in White Russia, and 110,783 acres in the Crimea, all a free gift of the Russian government. While the experiments were only three years old some of the new farmers were already beginning to repay the loans made to them. Others pointed out, with reference to Poland, that the population was an urban rather than a rural one, and that land settlements must of necessity be attended with great difficulty. In fact, one of the reasons for the financial situation reported by Mr. Steuer was the financing of coöperative banks and credit unions for the aid of Jewish artisans and small business men and these necessarily suffered with the decline of the zloty. The fact was stressed that, while the Russian agricultural experiment was a success, it could not be repeated as readily in Poland when reconstruction would have to follow on mercantile and industrial lines. The upshot of the Chicago conference was a vote of confidence in the management of the Joint Distribution Committee. It was reported that $21,000,000 had been pledged out of the $25,000,000 sought.

Council on Minority Rights. As a result of the meeting of Jewish delegates from Estonia, Latvia, Lithuania, Poland, Czechoslovakia, Bulgaria, and Austria at Zurich, August 17–19, a Jewish Council on Minority Rights was created for the purpose of securing political, economic and religious freedom for Jews in those countries where minority rights had been guaranteed by the Peace Treaties. Nahum Sokolow was elected president and quarters were opened at Geneva.

EXCESSES. There were no marked outrages committed against the Jews of eastern Europe, though anti-Semitism was still prevalent. It was generally accepted that organized anti-Semitism had weakened in Poland since the advent of the Pilsudski regime. Anti-Semitic propaganda continued to be noisy in Rumania and Hungary and there were evidences of ill-feeling in the colleges, particularly of those two countries and in Lithuania. The *numerus clausus* still prevailed in Hungary; in Poland the decree of 1923 was declared officially to be rescinded. At Budapest, in October, there were riots because the National Theatre was housing a play by the Jewish dramatist, Szomory. The play was withdrawn.

Sporadic disturbances occurred during the year in Budapest, Jewish students being the targets. This evidence of ill-feeling was awakened by the government's announcement that in 1928 the *numerus clausus* would be weakened to allow of the admittance of more Jewish students, in accordance with a promise made to the League of Nations. The government, in November, soon beat a hasty retreat at the animus of the Nationalists and withdrew the earlier pronouncement. *Numerus clausus* evidently was to prevail in Hungary. See also WELFARE WORK.

In Rumania student outrages continued to exist and reached such a pitch, particularly at the close of the year, that the Committee on the Right of Religious Minorities (on which were prominent non-Jews as well as Jews) in the United States was moved to protest to Secretary of State Kellogg, in December. This action had resulted from a study made by the Committee of outrages committed in Oradia Mare and Cluj. See also WELFARE WORK.

JOFFE, ADOLPH ABRAMOWICZ. Russian leader of the Bolsheviki, died by his own hand at Moscow, November 17, after a long illness. He was born at Simferopol, Russia, in 1883. In his youth his outspoken adherence to Socialism made impossible his attendance at a Russian university, and he went to Berlin, where he studied medicine from 1903 to 1906; then to Zurich, where he took a course in law, and finally to Vienna, where he studied both law and medicine. In the meantime, he kept in close touch with the Socialistic movement in Russia, and visited that country in furtherance of that cause. In 1906 his political activities led to his expulsion from Germany as an undesirable alien. At Vienna, in 1908, he became acquainted with Leon Trotsky, and was associated with the latter in founding the newspaper *Pravda*, later the official organ of the Bolshevists in Russia. He visited Russia several times under assumed names, and in 1912 was detected and sent to Siberia under a life sentence.

The March revolution of 1917 freed Joffe from Siberia, and he went to Petrograd to work against the continued participation of Russia in the war. With Trotsky, he issued the newspaper *Vperjed*. As a member of the Petrograd Workmen's and Soldiers' Council, and as a member of the central executive of the Soviets, he made his influence felt to so great a degree that he was chosen to head the Soviets' delegation to meet the Germans at Brest-Litovsk, being joined later by Trotsky. Joffe signed the armistice agreement but refused to sign the peace treaty, denouncing it strongly.

When he became ambassador to Germany, before the downfall of the imperial government there, he took part in the preparations for the revolution, despite his status as a diplomat. This led to his expulsion and the breaking off of relations between Russia and Germany. Joffe subsequently held high posts in the Soviet government, being in turn commissar for foreign affairs, commissar for social insurance, commissar for Soviet inspection in the Ukraine, in Petrograd, and in Turkestan, delegate to the Genoa conference, ambassador to China and Japan, delegate to Great Britain to negotiate a treaty with that country, and ambassador to Vienna. At his funeral, in Moscow, leaders of the Soviet administration and their foes—notably, among the latter, Trotsky, Zinovieff, Rakovsky, Kameneff and Radek—joined in paying the highest honors to his remains.

JOHNS HOPKINS UNIVERSITY. A nonsectarian institution of higher education for men (women are admitted to certain courses) at Baltimore, Md.; founded in 1876. The enrollment for the autumn of 1927 was 4539, distributed as follows; graduate school of arts and sciences, 477; school of medicine, 281; school of hygiene and public health, 103; college of arts and sciences, 419; institute for biological research, established in 1925, 1; school of engineering, 320; school of business economics, 70; college for teachers, 1469; night courses for technical workers, 472; evening courses in business economics, 902; courses in social economics, 1. The registration for the 1927 summer session was 1165. The faculty numbered 550. The productive funds amounted to $24,132,941.81, and the income for 1926–27, from all sources, to $2,002,353.45. The library contained 300,000 bound volumes. President, Frank Johnson Goodnow. LL.D.

JOHNSON, BURT W. American sculptor, died at Claremont, Cal., March 27. He was born at Flint, Ohio, Apr. 25, 1890, and was educated at Pomona Preparatory School and College, Claremont, Cal., later studying at the school of the Art Students' League, New York. He exhibited at the American Academy of Design, and Architectural League, New York; the Pennsylvania Academy of Fine Arts; the Albright Galleries, Buffalo, N. Y., and elsewhere. He lectured on civic sculpture and the history of American sculpture. Among his works were: The Pomona Valley war memorial statue and Spanish music fountain, Pomona College; the Woodside Memorial statue, New York City, and the Children's World War memorial fountain, Huntington Park, California.

JOHNSON, WILLIAM WOOLSEY. American mathematician and educator, died at Baltimore, Md., May 14. He was born at Owego, N. Y., 1841, and graduated at Yale in 1862. He served in the office of the United States Nautical Almanac, 1862–64; taught mathematics at the U. S. Naval Academy, 1864–70, at Kenyon College, Ohio, 1870–72, and at St. John's College, Annapolis, Md., 1872–81. In 1881 he returned to the Naval Academy as professor of mathematics, holding the chair until his retirement in 1921. He was connected with the Naval Academy more than fifty years and by special act of Congress received a commissioned rank in the navy in 1913. He was retired as a commodore. St. John's College conferred on him the degree of LL.D. in 1915. Professor Johnson was a corresponding member of the British Association for the Advancement of Science, a member of the American Mathematical Society, and of the London Mathematical Society. He wrote: *An Elementary Treatise on the Integral Calculus* (1881); *Curve Tracing on Cartesian Coördinates* (1884); *The Theory of Errors and Methods of Least Squares* (1890); *A Treatise on Ordinary and Partial Differential Equations* (1889); *An Elementary Treatise on Theoretical Mechanics* (1901); *Treatise on Differential Calculus* (1904); *Differential Equations* (1906); *Treatise on Integral Calculus* (1907); *An Elementary Treatise on the Differential Calculus* (1908).

JOHNSTON, Sir Harry Hamilton, British explorer and administrator in Africa, and writer, died at London, July 31. He was born at London, June 12, 1858, and was educated at King's College, London, and at the Royal Academy of Arts, 1876–80. He studied art also in France. He was in early life as in later years a skillful linguist, and with a command of French, Italian, Spanish, and Portuguese, at twenty-one he began his career of travel in northern Africa. In 1882 he joined the Earl of Mayo's expedition which explored Portuguese West Africa and the Congo region. In 1884 he headed a scientific expedition to Lake Kilimanjaro, in 1889 he explored Lakes Nyassa and Tanganyika, and in 1900 he climbed Mount Ruwenzori. At various times he held positions in the British consular service in Africa, and from 1899 to 1901 he was special commissioner, commander-in-chief and consul general for the Uganda Protectorate. He is credited with being the coiner of the phrase, "Cape to Cairo," to describe the all-British line of influence or control in Africa. His services won recognition from Queen Victoria and King George V in his creation successively as a Knight Commander of the Order of the Bath, 1896, and a holder of the Grand Cross of the Order of St. Michael and St. George, 1901. Besides he was the recipient of gold medals from the Zoölogical, the Royal Geographical and the Royal Scottish Geographical Societies, and of the honorary degree of D.Sc. from Cambridge University. Various foreign nations also conferred honors on him for his explorations in Africa.

He retired from the British consular service in 1902, as he was suffering from tropic fever, but in 1904 he returned to Africa to aid in adjusting the affairs of the Republic of Liberia. He wrote voluminously, and his writings were not restricted to descriptions of Africa, although the greater part of his work referred to that continent. Among his books may be mentioned: *Essays on the Tunisian Question* (1880–81); *The River Congo* (1884); *Kilimanjaro* (1885); *The History of a Slave* (1889); *Life of Livingstone* (1891); *British Central Africa* (1897); *A History of the Colonization of Africa by Alien Races* (1899); *The Uganda Protectorate* (1902); *British Mammals* (1903); *The Nile Quest* (1903); *Liberia* (1906); *George Grenfell and the Congo* (1908); *A History of the British Empire in Africa* (1910); *The Negro in the New World* (1910); *The Opening-up of Africa* (1911); *Views and Reviews* (1912); *Common Sense in Foreign Policy* (1913); *Phonetic Spelling* (1913); *The Truth About the War* (1916); *The Black Man's Part in the War* (1917); *The Gay Dombeys* (a novel) (1919); *Mrs. Warren's Daughter* (a novel) (1920); *The Story of My Life* (1923).

JONES, Andrieus Aristieus, Senator from New Mexico, died at Washington, D. C., December 20. He was born near Union City, Tenn., May 16, 1862, and was educated at Bethel College, McKenzie, Tenn., and at Valparaiso, Indiana, University. He completed the course of study in law at the latter institution, and, after teaching for two years in Tennessee, went to New Mexico and was admitted to the bar there. He served as mayor of Las Vegas, N. M., as United States District Attorney and as first assistant Secretary of the Interior, at Washington, D. C. (1913–1916), before being elected to the United States Senate, as a Democrat, in 1916; he was reelected in 1922.

JONES, Hugh Bolton. American painter of landscapes, died at New York, September 24. He was born at Baltimore, Md., Oct. 20, 1848. He studied art in his native city, and then went abroad, painting and sketching in Spain and France. He was elected to membership in the National Academy of Design in 1883. He won medals at several expositions; at Paris, 1889, Chicago, 1893, Paris, 1900, St. Louis, 1904, and San Francisco, 1915, besides receiving the Webb Prize of the Society of American Artists in 1902. Typical examples of his work are "Spring" and "Autumn," in the Metropolitan Museum of Art, New York; "Springtime," in the Corcoran Gallery of Art, Washington, D. C.; "Sheep Pasture," in the Pennsylvania Academy of Fine Arts, Philadelphia; and "Landscape," in the Museum, Brooklyn, N. Y. His work was called correct in line and delicate in color, but overdetailed in finish and lacking in inspiration.

JONNART, zhŏn-âr, Célestin Augustin Charles. French diplomat, died at Paris, September 30. He was born at Fléchin, France, Dec. 27, 1857, and was educated at the Lycée de Saint Omer, becoming a member of the bar. M. Jonnart's first governmental post was that of chief of the cabinet of the Governor General of Algeria, 1882–85; later he became, in sucession, director of Algerian affairs in the French Ministry of the Interior, deputy from the Pas-de-Calais, president of the General Council, Governor of Algeria, and Senator from the Pas-de-Calais. In 1913 he was minister of foreign affairs and in 1917 he distinguished himself by bringing Greece into the War on the side of the Allies. After that he was again Governor of Algeria, and then president of the reparations commission. He was the first French ambassador to the Vatican after the resumption of relations between France and the Holy See. In 1918 he was elected to membership in the Academy of Political and Moral Sciences, and in 1923 to membership in the French Academy in succession to Paul Deschanel.

JUDSON, Harry Pratt. American educator, died at Chicago, March 4. He was born at Jamestown, N. Y., Dec. 20, 1849. After graduating at Williams College, in 1870, he entered the profession of teaching as an instructor in and principal of the high school, Troy, N. Y., where he remained for fifteen years, 1870–85. Then he was professor of history and lecturer on pedagogics at the University of Minnesota, 1885–92. In the latter year he went to the University of Chicago (with which the rest of his professional life was identified) as professor of political sciences and dean of the colleges. He held those offices from 1892 to 1894. From 1894 to 1907 he was professor and head of the department of political science, and dean of the faculties of arts, literature, and science. He acted as president of the university, 1906–07, and in the latter year became president. In 1923 he retired from the presidency, receiving the title of president emeritus. After his retirement he was called upon frequently by the trustees for advice on the conduct of the university.

Dr. Judson was the recipient of honorary degrees from several American and Canadian universities, and was a Knight of the Prussian Order of the Crown and an Officer of the Legion of Honor of France, as well as holder of the First Class, Order of the Lion (with brilliants) of Persia and of the rank of Commander of the Order of Saint Sava of Servia. He became a member of the General Education Board in 1906 and was a member of the Rockefeller Foundation, 1913–24. During the War he served on several commissions for the United States government.

Among his literary activities Dr. Judson was co-editor of *The American Historical Review*, 1895–1902, and of a series of readers, and wrote: *History of the Troy Citizens' Corps* (1884); *Caesar's Army* (1888); *Europe in the Nineteenth Century* (1894; 3d ed., rev., 1901); *The Growth of the American Nation* (1895; 2d ed., 1900); *The Higher Education as a Training for Business* (1896); *The Mississippi Valley* (in Shaler's *United States of America*) (1894); *The Young American* (1895); *The Government of Illinois* (1900); *The Essentials of a Written Constitution* (Decennial Publications, University of Chicago, vol. iv); *Our Federal Republic* (1925).

JUGO-SLAVIA. A Balkan state, formed after the war, comprising under a federal form of government the following territories: The formerly independent kingdoms of Serbia and Montenegro; Bosnia and Herzegovina; Croatia and Slavonia, former autonomous States of Hungary, portions of the Banat, Backa, and Baranja, integral parts of Hungary proper; Dalmatia, a former province of the Austrian Empire; and Slovenia, composed of portions of former Austrian provinces. Capital, Belgrade.

AREA AND POPULATION. According to the census of Jan. 31, 1921, the area of Jugo-Slavia was 96,134 square miles and the population 12,017,323, representing a density of 125 to the square mile. The majority of the inhabitants speak Serbian and Croatian. Other important linguistic groups are the Slovene and other Slavic languages, German, Rumanian, Hungarian, and Albanian. The principal cities, according to the 1921 census, are: Belgrade, 111,740; Zagreb (Agram), 108,338; Subotica, 101,857; and Serajevo, 66,317.

EDUCATION. Education is compulsory, and, in all the primary schools under the Ministry of Education, it is free. In 1925–26 there were 7208 elementary schools with 17,576 teachers and 786,324 pupils. The number of secondary schools was 173 with 3595 teachers and 83,399 pupils. There were also 44 training colleges for elementary school teachers with 454 instructors and 7549 students. Of civil schools there were 155, with 1423 teachers and 26,635 pupils. There were also 19 commercial schools with 185 teachers and 2698 pupils. There are three universities in the kingdom: Belgrade, with 143 professors and 6114 students; Zagreb, with 145 professors and 3175 students; and Ljubljana, with 72 professors and 1031 students.

PRODUCTION. Provisional results of the 1926 harvest of the chief crops compared favorably with those of 1925, though a series of adverse developments during the year combined to reduce the earlier estimates of an export surplus commensurate with the sown area. Of the 6,017,180 hectares sown, it is estimated that 240,000 hectares, or 2.5 per cent of the total, were ruined by floods, while heavy rains and cool weather affected the quality of the crops in certain regions. The floods in the great grain-growing region of the Voivodina were largely responsible for the smaller wheat crop, which was estimated at 2,020,000 metric tons as compared with 2,140,400 in 1925. Preliminary figures for the corn crop placed it at 3,400,000 metric tons, as against 3,791,000 in 1925. Estimates for the other crops for 1926 were as follows: Barley, 402,139 tons; rye, 210,044; oats, 373,932; maslin, 46,882; and spelt, 14,416 metric tons. With the exception of spelt, all show a slightly increased production over 1925. The demand for these cereals, however, was small. The extent of the drop in agricultural prices during the year was indicated in the exports of the two leading crops. Corn exports totaled 894,716 metric tons valued at 1,338,600,000 dinars, as compared with 1,011,273 tons valued at 2,055,700,000 dinars in 1925. Exports of wheat totaled 297,285 metric tons valued at 841,100,000 dinars, as against 169,958 tons and 501,500,000 dinars in 1925. The fall of prices was especially noticeable in the case of hogs, cattle, and horses.

The lumber industry, which ranks next to agriculture and livestock in importance, was dull during the greater part of 1926 following the depression of 1925. About one-third of the whole capital invested in the country's industries is estimated to be devoted to the manufacture of forest products, and approximately 100,000 workers are employed in the lumber and woodworking mills. Mineral resources are of some importance and include: Coal and lignite, copper ore, iron, lead, gold, chrome, antimony, and cement. A dispute over prices of coal supplied to the government by private firms, during which no deliveries were made, interfered with coal production in 1926. Following the adjustment of the dispute later in the year, however, production was speeded up so that the output was expected to fall only slightly below the 4,100,000 tons of 1925.

COMMERCE. For the third consecutive year a favorable balance of trade was achieved, exports in 1926 exceeding imports by 186,400,700 dinars as against 151,621,300 in 1925. While imports were slightly less in both value and volume as compared with the preceding year, exports had a lower value 7,818,100,000 dinars as against 8,904,500,000 dinars and a greater volume. The reduction in export values was accounted for by the fall in agricultural prices; the reduced imports reflected the lower purchasing capacity of the population. (See table, page 436.)

FOREIGN TRADE OF JUGO-SLAVIA FOR 1926

Commodity	*Quantity*	*Value*[a]
IMPORTS	*Metric tons*	*Million dinars*
Cotton	21,334	1,508.0
Wool products	4,331	660.6
Iron and iron articles	132,106	660.0
Machinery and apparatus	22,926	384.7
Wool, hair, skins, cocoons, and feathers	13,639	321.4
Mineral oils, tar, resin, etc.	112,476	283.4
Colonial products	10,677	273.2
Chemical products, inorganic	109,684	244.0
Industrial and medicinal plants	8,985	208.2
Silk	442	203.0
Coal	440,529	199.2
Paper and paper articles	33,337	194 4
Leather and leather articles	1,586	176.5
Hemp, flax, etc.	7,883	163.0
Vehicles	4,828	47 9
Vehicles	11,079[b]	101.0
Copper and alloys	4,495	128.2
Electrotechnical machinery	3,278	127.9
Rice	21,447	112.7
Glass and glass articles	14,824	102.9
Soft india rubber	1,237	82.6
Stone, clay, plaster, lava, cement articles, etc.	27,079	90.4
Scientific articles	410	58.2
Scientific articles	893[b]	13.3
All others	243,521	1,287.1
Total value	....	7,631.8
EXPORTS		
Corn	894,716	1,338.6
Wheat	297,285	846.1
Wood for building	1,086,315	802.6
Eggs	31,086	606.3
Cattle	126,877[c]	355.3
Live pigs	297,870[c]	339.3
Fresh meat	21,504	324.0
Crude copper	10,769	250.9
Prunes	47,184	238.6
Hops	8,150	206.5
Wheat flour	32,820	156.8
Cement	320,271	126.4
Live horses	36,574[c]	106.5
Hemp	14,008	98.8
Lead, in bars	9,190	94.8
Small cattle	587,944[c]	88.7
Haricots	48,916	87.4
Fresh fruit	38,640	85.2
Other grains	50,038	85.0
Wood for fuel	407,459	83.3
All other	1,571,367	1,502.0
Total value	....	7,818.1

[a] The dinar had an average exchange value of $0.0171 in 1925 and $0.0176 in 1926.

[b] Pieces.

[c] Head.

Austria displaced Italy as the principal country of origin, furnishing 20.08 per cent of the imports; Czechoslovakia supplied 18.7 per cent, and Italy 13.82 per cent. Italy ranked first as a buyer of Jugo-Slav exports, taking 25.07 per cent; Austria accounted for 20.59 per cent and Czechoslovakia for 12.01 per cent. In spite of the reduction in total imports, American goods continued to show satisfactory increase, their imports totaling 309,217,000 dinars (about $5,456,700), or 4.05 per cent of the total, as against 341,513,000 dinars ($5,824,200), or 3.9 per cent, in 1925. Exports to the United States aggregated 49,696,756 dinars ($876,999), as against 76,637,535 ($1,306,977) for 1925, or 0.64 per cent and 0.86 per cent, respectively, of total exports.

FINANCE. The lower value of export products, with the consequent reduced profits to the producer, was sharply reflected in the decreased state revenues. The government policy of financial retrenchment, however, has kept expenditures within the revenue limits. Expenditures for the first six months of the 1926–27 financial year (April-September) totaled 4,721,261,604 dinars, or 1,530,738,395 dinars less than the budget estimates for that period. Actual receipts for the same period amounted to 5,177,305,946 dinars, or 1,074,694,053 dinars less than the estimates. Receipts therefore exceeded expenditures by 456,044,341 dinars. In framing the proposed 1927–28 budget the lower taxpaying capacity of the population was taken into consideration, and both receipts and expenditures were reduced from those voted for the 1926–27 fiscal year. The proposed budget was balanced at 11,690,000,000 dinars, as against 12,504,000,000 dinars actually voted for the previous year. The only increases were for pensions (105,942,449 dinars above 1926–27), ministry of education (81,536,115), ministry of agriculture, 55,596,862), public debt (31,046,418), and ministry of religion (7,882,885 dinars).

COMMUNICATIONS. Vessels entering Jugo-Slav ports during 1926, as stated by the port administration of Spalato, numbered 69,810, with a total tonnage of 10,220,821. Of these, 6207 were sailboats and 63,603 steamships. During the same period there left the ports of the kingdom 6183 sailboats and 63,589 steamships—altogether 69,772, with a total tonnage of 10,219,727. These figures represent a steady increase in port traffic since 1923, both in number of vessels and in their aggregate tonnage.

The Jugo-Slav railway system is not very extensive, ranking twenty-third in length in the world and twelfth in Europe. At the close of 1926 the length of the railways in the country totaled 8955 kilometers (about 5564 miles), of which 7995 kilometers were State owned and 960 kilometers privately owned. Operating revenues during the year amounted to 2,530,617,107 dinars (operating expenses were not available). The rolling stock in operation comprised 2759 locomotives, 59,568 freight cars, and 4245 passenger cars. After the loss of Fiume the Jugo-Slav government had to take steps to provide for the seaborne commerce of the kingdom. For this four ports could be taken into consideration, Shebenik, Gruz, Split, and Kotor. Of the four, the finest natural harbor is undoubtedly Kotor, but it is, so far, without railway communication with the hinterland and the mountainous nature of the country to be traversed would make the construction of a trunk line into the interior a long and costly undertaking. There was no doubt that sooner or later this line would be built, as it would tap a country with immense economic possibilities, but for the time being it was necessary to concentrate on a project which would give more immediate results, take less time to construct and cost less money.

It was for this reason that the port of Split was selected and steps were being taken for the immediate construction of a double-track, standard gauge line, running from Belgrade to the Adriatic. This line will, therefore, connect the capital, via Sarajevo, with Split. In addition it will connect the confluence of the Save and Danube rivers with the Adriatic. It will thus connect one of the most fertile regions in Europe with the mountainous Dalmatia, rich in minerals. From the capital a line running across the Danube at Panchevo will continue the Belgrade-Split railway into the Banat of Temesvar, the richest and most fertile province of Jugo-Slavia, while the great plum growing centre of Valjevo will be put in direct connection with the sea.

GOVERNMENT. Under the constitution adopted June 28, 1921, executive power is vested in a king and legislative power in a single chamber or National Assembly, which consists of 313 members. As a result of the election of Feb. 8, 1925, the party grouping in the national assembly was as follows: Radicals, 140; Independent Democrats, 22; Democrats, 37; Croatian Agrarians, 67; Serb Agrarians, 5; Mohammedans, 15; Catholic People's party, 20; others 4. The King in 1927 was Alexander I, born Dec. 17, 1888, who succeeded to the throne with full royal rights on Nov. 6, 1921. The cabinet as formed on Feb. 1, 1927, was as follows: Prime Minister, N. Uzunovitch; Finance, B. Narovitch; Foreign Affairs, N. Peritch; Interior, B. Maximovitch; Justice, M. Srchkitch; Public Worship, M. Trifounovitch; Posts and Telegraphs, M. Vouitchitch; Education, M. Vouitchitch; Public Health, S. Miletitch; Forests and Mines, K. Miletitch; Unification of Laws, V. Yovanovitch; Agriculture, M. Coulovets; Public Works, M. Cernets; Social Affairs, M. Hodjar; War, General Hadjitch; Communications, General Milosavlievitch.

HISTORY. As noted in the previous YEAR BOOK, the year 1926 closed with the Jugo-Slavian political situation in a turmoil, one considerably heightened by the death of Nicola Pashitch, "the grand old man of Serbia." At the very beginning of the year, Nikola Uzunovitch formed another cabinet, which at first seemed to be on a very firm footing as a result of elections. On January 28, however, Premier Uzunovitch was again compelled to resign (the sixth time within a year) because of dissatisfaction on the part of the Croats with the way the government handled the elections, claiming that undue influence was used to get a government majority. The King immediately asked Uzunovitch to form another cabinet. He succeeded in doing so on February 1, by eliminating the Croat members and substituting for them Slovenians and Serbian radicals.

Uzunovitch's rule was short-lived, however. He soon was embroiled in the chief political event of the year to such an extent that he was compelled to resign again in April. The event referred to, of course, was the Italian-Albanian Treaty. This document threw the entire Balkans into a ferment throughout the year and if one could believe the press, from time to time almost brought Italy and Jugo-Slavia to the brink of war. The new cabinet as constructed on April 10 was as follows: Prime Minister, Minister of Interior and Education, V. Vukitchevitch; Foreign Affairs, Dr. V. Marinkovitch; Public Works, I. Shumenkovitch; Mines and Forests, K. Koumanoudi; Social Affairs, A. Miyevitch; Commerce, Mehmed Effendi Spaho; Agrarian Reform and Public Health, V. Andritch; Agriculture, S. Stankovitch; without portfolio, N. Peritch; Public Worship, Dr. M. Srshkitch; Finance, B. Markovitch; War, General Hajitch; Communications, General Milosavlyevitch.

The machinations of the new government, how it turned to Moscow, to Berlin, and finally to Paris to secure a treaty of friendship and alliance to offset the penetration of the Balkans by Italy, are discussed under the article ALBANIA, *History*. As noted under the historical section of BULGARIA, the relations between that country and Jugo-Slavia were strained throughout the year by the depredations of the *comitadji* along the frontier. *Comitadji*, contrary to general belief, does not mean "bandits" in any sense of the term, but is probably best translated by the term "comrades." The *comitadji* were Macedonian nationalists who desired an independent Macedonia and who possibly thought that by stirring up trouble in the Balkans they might be able to carve their desired state out of the results of a Balkan war. Whatever their thoughts, they caused no end of difficulty between the two countries, who, on the surface at least, were attempting to formulate a strong friendship and maybe a military alliance.

Jugo-Slavia was very patient with the outrages committed and frankly admitted to Bulgaria that she did not hold that government responsible for the depredations. Serious trouble was narrowly averted early in October when the Jugo-Slav General Kovachevitch was assassinated at Istip, Jugo-Slavia, on the sixth of that month. Martial law was declared by Jugo-Slavia in the territory bordering on Bulgaria, but even that stern measure did not prevent the *comitadji* from committing further offenses against Jugo-Slavian sovereignty. See BULGARIA, *History*.

KAGWA, SIR APOLO. Former prime minister of Buganda, died at Nairobi, Uganda Protectorate, February 21. A native of Buganda, the central and most important province of the Uganda Protectorate, he was an early convert to Christianity, and aided the British at the time of the establishment of the protectorate in 1894. In 1897, when King Mwanga of Buganda was deported, leaving an infant son, Kagwa was one of the three regents chosen to govern the kingdom until the son attained his majority in 1914. In 1902 he visited England to attend the coronation of Edward VII, as official representative of the protectorate. From 1914 to 1926 he served as prime minister of Buganda. In 1925 he was created a Knight Commander of the Order of St. Michael and St. George.

KAISER WILHELMSLAND. Ki′zer-vil-hĕlmslănt′. A mandated territory under the control of Australia. It was a colony of Germany at the outbreak of the war in 1914, but was shortly captured by Australian forces. It occupies the northern part of S. E. New Guinea. On Dec. 17, 1920, the League of Nations assigned it to Australia under a mandate. See GERMAN NEW GUINEA.

KAMERUN, kä-me-rōōn′, CAMEROON or CAMEROONS. The name applied to the territory between British Nigeria and French Equatorial Africa, extending from the Gulf of Guinea to the south shore of Lake Chad; formerly a German protectorate, but occupied by the British and French during the War and divided in 1919 between France and Great Britain, the former getting far the greater part. Area (exclusive of the tract transferred to Germany from the French Congo in 1911), 191,130 square miles; population, 2,540,000.

FRENCH KAMERUN. At the time of the division of the former German protectorate in 1919, France received an area of 166,489 square miles (also exclusive of the area ceded to Germany in 1911, which, after the war, was annexed to French Equatorial Africa); population, about 1,500,000. The seat of the government is at Yaoundé, and the chief port is Donala. In 1925 there were 73 government schools with a total attendance of 10,549. The principal products are cacao, coffee, ivory, tobacco, palm oil, and palm nuts. In 1925 the imports amounted to 126,086,353 francs, and the exports to 113,085,014 francs. In the same year 217 vessels entered at the port of Donala. The general budget for 1926 balanced at 26,229,800 francs and there was a special railway budget of 10,527,000 francs. There are 369 miles of railway. The colony was created an autonomous territory by decree of Mar. 28, 1921, and is under the administration of a French Commissioner. Commissioner in 1927, M. Marchand.

British Cameroons. Great Britain received about 31,000 square miles of Kamerun in the division of 1919. The population is estimated at about 660,000. Cacao, palm kernels, rubber hard-wood, and ivory are the principal products. In 1925 the imports were £238,635 and the exports £126,668. In the same year 91 vessels of 206,508 tons entered the port of Victoria. The revenue and expenditure for the British Cameroons are now incorporated with those of Nigeria (q.v.). The governor of Nigeria is the administrator of the British Cameroons.

KANSAS. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,769,257. According to the State census taken in 1925 the population was 1,812,986. The estimated population on July 1, 1927, was 1,828,000. The capital is Topeka.

Agriculture. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat,	1927	9,936,000	111,283,000	$130,201,000
winter	1926	10,139,000	150,057,000	178,568,000
Wheat,	1927	10.000	44,000	51,000
spring	1926	8,000	27,000	31,000
Corn	1927	5,897,000	176,910,000	107,915,000
	1926	5,563,000	61,193,000	42,835,000
Hay	1927	2,625,000	5,476,000 [a]	43,524,000
	1926	2,467,000	3,247,000 [a]	41,591,000
Oats	1927	1,463,000	34,380,000	15,471,000
	1926	1,626,000	35,122,000	15,454,000
Potatoes	1927	49,000	5,390,000	5,390,000
	1926	43,000	3,913,000	6,652,000
Barley	1927	452,000	5,695,000	3,132,000
	1926	266,000	3,032,000	1,850,000
Sorghum,	1927	1,547,000	32,487,000	19,492,000
grain	1926	1,345,000	20,175,000	12,105,000

[a] tons.

Mineral Production. The State produced minerals in 1925 to a total value of $142,944,214, duplications eliminated; in 1924, to a value of $105,005,476. While petroleum yields the greater part of the yearly total, as to value, zinc, coal, natural gas, cement, clay products, lead and salt all furnish important contributions to the total. There were produced in 1926, 126,307 short tons of zinc and in 1925, 118,778 tons, having a value of $18,946,050 for 1926 and for 1925 of $18,054,256. Of lead were produced 28,463 short tons in 1926 and 22,775 short tons in 1925; in value, $4,554,080 in 1926 and in 1925, $3,962,850. Of coal were produced 4,531,000 short tons in 1926; in 1925, 4,524,251 tons. Coal produced had a value for 1925, the latest year of available reports, of $13,013,000. The State increased its year's output of petroleum in 1926, producing 41,427,000 barrels, to 38,357,000 barrels in 1925; in value, the product was $93,100,000 for 1926 and for 1925, $74,410,000. Natural gas was produced to the quantity of 26,917,000 M cubic feet in 1925 (latest year reported) and of 25,580,000 M cubic feet in 1924; to the value of $9,981,000 in 1925 and of $10,097,000 in 1924. Gasoline was extracted from natural gas to a quantity of 24,600,000 gallons in 1926 and in 1925 of 19,592,000 gallons; in value, $2,000,000 in 1926 and in 1925, $2,223,000. Clay products had in 1925 a value of $4,345,971; in 1924, of $4,024,535. Cement production, 6,357,581 barrels for 1926 as against 6,511,393 barrels for 1925, had for 1926, as based on shipments, a total value of $9,757,699; for 1925 of $10,861,506. Salt production, as to quantity, was 729,880 short tons in 1926; in 1925, 812,540 tons. In value, it was $2,741,534 in 1922 and in 1925 $2,494,423.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $12,403,468; their rate per capita was $6.83. They included $548,718 apportioned for education. Totals not included above, of $475,028 expended in public service enterprises, $1,255,922 in interest payments and $3,790,113 in permanent improvement outlays, brought the aggregate of State expenditure to $17,924,531. Of this, $3,440,638 was for highways; $977,377 being for maintenance and $2,463,261 for construction. Interdepartmental payments formed $99,313 of State expenditure.

Revenue receipts were $22,288,077; or per capita, $12.27. Of their total, property and special taxes yielded 41.7 per cent, attaining a rate of $5.11 per capita. Earnings of departments and compensation paid the State for officials' services supplied 13.5 per cent of revenue; 37.9 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sale tax.

Net State indebtedness on June 30, 1926, was $25,788,898, or $14.19 per capita. Property subject to ad valorem taxation bore a total valuation of $3,637,554,472. State taxes levied were $9,544,148, or $5.25 per capita.

Transportation. The number of miles of railroad line in the State on Jan. 1, 1927, was 9,378.59. New construction in 1927 was 8.56 miles of first, 22.76 of second and 4.05 of third track.

Education. Revision of the school laws of the State was placed by the Legislature in the hands of a school code commission, with the recommendation that this commission should advise such alterations as would improve the entire school system. The commission was directed to report to the 1929 session of the Legislature. The school population of the State in 1926 was reckoned at 543,746. There were enrolled in the public schools 420,472 pupils, of whom 324,666 were in the common schools and 95,806 in high schools. Expenditure on the elementary and secondary public schools in 1926 attained $35,303,036. The average salary of teachers was, in rural one-teacher schools, $92.50 a month; for village elementary school teachers, $112.55 a month; for village high school teachers, $175.26 a month. For city elementary school teachers, salaries ranged from $125 to $135 a month; for city high school teachers, from $177 to $198 a month.

Charities and Corrections. The State Board of Administration, established in 1907, has under its control the State charitable and penal institutions. These, with their approximate populations, as given in 1927, were: Topeka State Hospital, 1700; Osawatomie State Hospital, 1300; Larned State Hospital, 600; State Hospital for Epileptics, Parsons, 700; State Training School, Winfield, 800; State Sanatorium for Tuberculosis, Norton, 150; State Orphans' Home, Atchison, 150; Kansas State Penitentiary, Lansing, 1600; Kansas State Industrial Reformatory, Hutchinson, 800; Women's Industrial Farm, Lansing, 200; Boys' Industrial School, Topeka, 350; Girls' Industrial School, Beloit, 200. The number of prisoners admitted to State institutions in 1926, according to the Department of Commerce, was 1256; patients in the State insane hospitals numbered, Jan. 1, 1927, 3697.

Legislation. The State Legislature convened in regular biennial session in January. Facing the prospect that the Federal Government would otherwise discontinue its subvention to road building within the State, the legislators framed and passed what was designated as a makeshift bill to preserve the Federal subvention. This bill created a highway commission of six members and provided that from the gasoline tax there should be credited $2,000,000 a year to the State aid road fund. An insurance code drafted by a commission created by the previous Legislature was enacted. It provided that foreign and domestic companies should pay taxes at the same rate, that promotion expenses should not exceed 5 per cent of the par value of the stock, and that agents should be licensed after passing a State test. The Legislature repealed the State law of 1909 prohibiting cigarettes, and rendered their sale legal subject to a license fee. The penalty of life imprisonment for every person convicted in Kansas of a third felony was prescribed by law. The Legislature passed a bill accepting the aid offered by the Federal maternity and infancy act.

Political and Other Events. Governor Paulen took office January 10, taking the oath not at the capital, but at Fredonia, where his father had just died. The United States Supreme Court sustained February 24 the action of the State in its exclusion of the Ku Klux Klan organization of Georgia which had sought to act in Kansas and had been excluded as an unauthorized foreign corporation. The closing of seven small banks in southeastern Kansas February 24 brought a sudden increase of liabilities of the State bank depositors' guaranty fund. According to information of that date the funds, the essential feature of the State bank guaranty law, had resources insufficient by some $5,000,000 to meet liabilities. There arose a demand that the State should repeal the law and should issue bonds to cover excess liability of the guaranty fund. At Lansing, Kansas, 328 convicts employed in coal mining mutinied, June 21, demanding various advantages, particularly cigarettes, which had been legalized by the Legislature. They barricaded themselves in a mine 720 feet underground, where they remained 72 hours unmolested, and finally came up of their own accord. The resignation of Lew T. Hussey, chairman of the State Public Service Commission, was demanded, after an investigation of his acts by a Legislative committee; Governor Paulen replied to the committee May 24 that he had no power to remove Hussey under the circumstances, and declined to act. The City Council of Kansas City enacted a local tax on cigarettes.

Officers. Governor, Ben S. Paulen; Lieutenant Governor, D. A. N. Chase; Secretary of State, F. J. Ryan; Treasurer, Carl White; Auditor, Will J. French; Attorney-General, W. A. Smith.

Judiciary. Chief Justice, William A. Johnston; Justices: Rousseau A. Burch, Henry F. Mason, John Marshall, John S. Dawson, W. W. Harvey, and Richard J. Hopkins.

KANSAS, University of. A State institution of higher education at Lawrence, Kan.; founded in 1864. The 1927 autumn registration was 4229, of whom 138 were registered in more than one school, leaving a total enrollment of 4091. Of this number 1516 were women and 2575 men, distributed as follows: graduate school, 222; college of liberal arts and sciences, 2389; engineering, 542; fine arts, 357; law, 136; pharmacy, 80; medicine, 276; education, 105; and business, 122. The 1927 summer session had an enrollment of 1680, of whom 936 were women and 744 were men. The faculty numbered 365. The endowment fund amounted to $230,000, and the income for the year, including the balance carried over from 1926, was $2,349,392. There were 192,000 volumes in the library. Chancellor, Ernest Hiram Lindley, LL.D.

KARAFUTO. The name applied to the Japanese half of the island of Sakhalin (q.v.), which comprises that portion south of the 50th parallel of N. latitude. Area, approximately 13,934 square miles; population, according to the census of 1925, 203,504. The chief industry is the herring fisheries, although the colony is suitable for agriculture and pasturage. The Japanese government supplies Japanese settlers with seed and domestic animals. There are also valuable forest lands and mines, the chief minerals being coal and alluvial gold. The budget for the year ending Mar. 31, 1925, balanced at 17,124,303 yen.

KASTALSKY, Alexander Dmitrievitch. Russian composer, died at Moscow in January. He was born at Moscow, Nov. 28, 1856, and received his musical education at the conservatory there under Tchaikovsky, Tanieiev and Hubert. In 1901 he became conductor of the Synodal Choir, with which he made very successful tours of Europe. From 1912 to 1922 he was also professor of composition at the Philharmonic School in Moscow, and during the last three years was in charge of the choral classes at the conservatory. His eminence as a composer of sacred music is due to his fine taste and feeling for style, which enabled him to achieve an individual style through blending old and new elements. He wrote about a hundred sacred choruses, a cappella, an oratorio, *The Furnace of Nabucho*, and an opera, *Klara Militche* (Moscow, 1916).

KATO, kä'to, Tehkichi, Baron. Admiral in the Japanese navy, died September 5. He was born at Tokyo-fu, in 1861. Entering the navy, he became a sub-lieutenant in 1886 and rose through successive grades to that of rear-admiral in 1907. He served as commander-in-chief of the Second Fleet, which blockaded Tsingtao, China, in 1914. In 1915 he became chief of the Naval Education Board. He was created a baron in 1916, and in the same year succeeded to the command of the Kure Naval Station.

KAUFFMANN, Rudolph. American editor and publisher, died at Dunkirk, N. Y., September 19. He was born at Zanesville, Ohio, Oct. 5, 1853. He graduated at Amherst College in 1875, and in the same year became a reporter on *The Washington Star*, Washington, D. C. In 1878, he was officially connected with the United States exhibit at the International Exposition in Paris. He became managing editor of *The Star* in 1893, and held the position until his death. He was also president of the Columbia Planograph Company of Washington, a director of the National Metropolitan Bank, a member of the board of managers of the National Geographic Society, and a director of the Corcoran Gallery of Art and also of the Children's Hospital.

KEABLE, Robert. British novelist, died in Tahiti, in December. He was born Mar. 6, 1887, and was educated at Magdalene College, Cambridge, winning honors in history. He was ordained in the Church of England in 1911, and was curate of Bradford Parish, Yorkshire, before going to Africa as a representative of the Universities Mission to Central Africa. His first important book, *A City of the Dawn*, published in 1915, was based on his experiences in Zanzibar, and revealed a romantic spirit as well as fine descriptive powers. He was chaplain to the South African forces in France, 1917–18, but resigned his orders to devote his entire time to writing. It was said that the War had unsettled his faith. His novel, *Simon Called Peter*, published in 1921, attracted wide attention. It was the story of an army chaplain's lapse from Christian faith and Christian morals. It was followed by *The Mother of All Living* (1921); *Peradventure* (1922); *Recompense* (1924); *Numerous Treasure* (1925); *Tahiti, Isle of Dreams* (1925); and *Recognition* (1926). He also wrote several religious books besides *A City of the Dawn*.

KELLY, William Joseph. American jurist, died at Brooklyn, N. Y., October 11. He was born in Brooklyn, Apr. 13, 1860, and was admitted to the bar in 1881. He engaged in general practice in New York and Brooklyn and became counsel for the Long Island R. R. He early gained a wide reputation as a trial lawyer and was retained by the Philadelphia & Reading and the New York & New England Railroads. In 1903 he was a successful candidate for justice of the Supreme Court in the Second Judicial District, New York. In 1917 he was appointed by Governor Whitman to the appellate division. In 1921 he was reappointed by Governor Miller, and in 1923 was named presiding justice of the appellate division by Governor Smith, serving until his death.

KELSEY, Francis Willey. American archæologist and educator, died at Ann Arbor, Mich., May 14. He was born at Ogden, N. Y., May 23, 1858, and graduated at the University of Rochester in 1880. He studied abroad, 1883–85. He went to Lake Forest University in 1880 as instructor in Latin and became professor in 1882, remaining there until 1889, when he accepted the chair of Latin Language and Literature at the University of Michigan; he occupied the chair at the time of his death. In 1919, 1924, 1925, and 1926 he directed the University of Michigan Archæological expeditions to the Near East, returning in the spring of 1927 from Egypt, where he had been in charge of archæological research. The University of Rochester conferred on him the degree of LL.D. in 1910. He was the editor of editions of *Cæsar's Gallic Wars, Orations and Letters of Cicero* and other classics, including Ovid, Lucretius, and Xenophon. With Professor Percy Gardiner he edited *Handbooks of Archæology and Antiquities* since 1896, and with Professor H. A. Sanders, *University of Michigan Studies, Humanistic Series,* since 1904.

KELTIE, Sir John Scott. Scotch geographer, died at London, January 12. He was born at Dundee, Mar. 29, 1840, and was educated at Perth and the Universities of St. Andrews and Edinburgh. He joined the editorial staff of W. & R. Chambers in 1861 and was with Macmillan & Co., as sub-editor of *Nature*, from 1871 to 1884, when he became inspector of geographical education for the Royal Geographical Society. From 1885 to 1892 he was librarian of the society and served from 1892 to 1915 as its secretary. He was president of the Geographical Section of the British Association in 1897. He received the Cullum Gold Medal from the American Geographical Society in 1915, gold medals from the Paris and Royal Scottish Geographical Societies in 1915, and the Victoria Medal of the Royal Geographical Society in 1917. In recognition of his contributions to geographical science he was made a Commander of the Swedish Order of the North Star, 1898; the Norwegian Order of St. Olaf, 1907; the Finnish Order of the White Rose, 1921; and was elected to honorary membership in the geographical societies of Edinburgh, Paris, Petrograd, Rome, Brussels, Amsterdam, Geneva, Marseilles, Lisbon and Philadelphia. He was knighted in 1918. In addition to contributions to newspapers and magazines, he wrote a *History of Scottish Highlands and Clans* (1874); *Report on Geographical Education* (1886); *Applied Geography* (new ed., 1908); *The Partition of Africa* (1894); and (with O. J. R. Howarth) *The History of Geography* (1914), and served as editor of *The Statesman's Year Book* from 1880 until his death.

KEMPNER, Maximilian. German lawyer and industrialist, died at Amsterdam, Holland, May 11. He was born in 1855. He was one of the foremost experts on the international potash industry, being co-author of the potash law passed by the German Reich. He served for many years as chairman of the potash syndicate and was a member of the potash council of the Reich. He visited America early in 1927 to renew negotiations for the loan which the German potash syndicate had attempted to raise in 1925, but was obliged to defend his company in an action brought by the United States government under the anti-trust law. He was one of the leading authorities in Germany on financial and economic legislation and on the organization of stock companies. He was chosen as the special representative of Chancellor Luther to communicate the terms of the Locarno treaty to the German cabinet, and made a report which led to favorable action by the cabinet. He was a member of the Federal Economic Council and served as chairman of boards of directors of 22 industrial corporations.

KENTUCKY. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,416,630. The estimated population on July 1, 1927, was 2,538,000. The capital is Frankfort.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	2,885,000	75,010,000	$66,009,000
	1926	3,069,000	101,277,000	65,830,000
Tobacco	1927	319,000	242,820,000[a]	40,065,000
	1926	426,000	358,000,000[a]	38,008,000
Hay	1927	1,350,000	1,916,000[b]	27,620,000
	1926	1,179,000	1,554,000[b]	25,807,000
Potatoes	1927	52,000	4,732,000	6,152,000
	1926	47,000	4,512,000	6,994,000
Sweet potatoes	1927	16,000	1,488,000	1,786,000
	1926	17,000	2,040,000	2,203,000
Wheat, winter	1927	322,000	3,059,000	4,130,000
	1926	258,000	4,773,000	6,348,000
Oats	1927	215,000	4,085,000	2,451,000
	1926	259,000	6,846,000	3,363,000
Sorghum sirup	1927	38,000	3,078,000[c]	2,616,000
	1926	51,000	4,845,000[c]	3,876,000

[a] pounds, [b] tons, [c] gallons.

Mineral Production. The State continued important in the mineral field, preëminently in the production of coal. Fourth in rank among the States in 1925 as to the magnitude of bituminous coal output, Kentucky continued in this relative position in 1926. There were mined in 1926, 47,460,439 net tons of coal; in 1925, 55,068,670 tons. Coal produced attained a value of $88,736,000 for 1926; for 1925, $94,825,000. Petroleum was produced to the quantity of 6,280,000 barrels in 1926, in 1925 of 6,759,000 barrels; and to the value of $15,300,000 in 1926 and in 1925 of $15,682,000. Natural gas yielded in 1925, the year of latest available report, 10,770,000 M cubic feet; in 1924, 12,875,000 M cubic feet. This product was valued at $3,213,000 for 1925 and for 1924 at $3,432,000. Asphalt production was 286,850 short tons in 1925 and 274,743 tons in 1924; in value, $2,493,360 in 1925 and 1924, $2,386,557. Clay products in 1925 attained a value of $7,853,355; in 1924 of $7,519,239. Sand and gravel and stone were each produced in important quantities. The entire mineral production of the State, duplications excluded, attained $131,370,840 for 1925; for 1924, $120,510,775.

Finance. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $16,886,279; their rate per capita was $6.71. They included $4,891,536 apportioned for education. Totals not included above, of $836,907 in interest payments and $10,004,319 in permanent improvement outlays, brought the aggregate of State expenditure to $27,727,505. Of this, $11,709,808 was for highways; $2,533,674 being for maintenance and $9,176,134 for construction.

Revenue receipts were $28,267,688; or per capita, $11.24. Of their total, property and special taxes yielded 39.2 per cent, attaining a rate of $4.41 per capita. Earnings of departments and compensation paid the State for officials' services supplied 7.8 per cent of revenue; 34.3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sale tax.

Net State indebtedness on June 30, 1926, was $2,305,408, or $0.92 per capita. Property subject to ad valorem taxation bore a total valuation of $2,933,133,366. State taxes levied were $10,325,391, or $4.10 per capita.

Transportation. The number of miles of railroad line in the State on Jan. 1, 1927, was 4,009.94. New construction in 1927 as reported by the *Railway Age* was 44.04 miles of first track and 26.78 miles of second track.

Education. Efforts in the public educational system of the State during the year, according to Superintendent of Instruction McHenry Rhoads writing in the *Journal* of the National Education Association, were largely centred on the standardization of teaching and administrative forces. The issue of State purchase of school text books played a part in the campaign for election of a governor. Under the existing system the State furnished free text books only to children whose families were unable to pay for them. Flem D. Sampson, Republican candidate for Governor, advocated the issue of free text books to all children, as far and as soon as the State could meet the cost, which he placed at some $4,000,000 a year. He was elected over his opponent, who opposed this plan. The school population was given in 1927 as 658,608. There were enrolled in the public schools of the State 562,477 pupils; of these, 516,466 were in the common schools and 46,001 in the high schools. Expenditure for public education was stated in 1927 to total $23,871,575.

Charities and Corrections. The State Board of Charities and Corrections, a non-salaried and non-partisan body, had under its charge seven State institutions. Its chief executive officer was the Commissioner of Public Institutions, appointed by the Board. Institutions controlled, with their inmate population in October, 1927, were: The Eastern State Hospital, Lexington, 1379; The Central State Hospital, Lakeland, 1882; Western State Hospital, Hopkinsville, 1708; Feeble-minded Institute, Frankfort, 454; State Reformatory, Frankfort, 1615; State Penitentiary, Eddyville, 689; State House of Reform, Greendale, 513. As reported by the Department of Commerce, there were admitted to the State penal institutions in 1926 1365 prisoners; patients in State hospitals for mental disease numbered 4831.

Political and Other Events. Flem D. Sampson, Republican candidate, was elected Governor, November 8, defeating J. C. W. Beckham by a majority of 52,133 votes. The Democratic candidate for Lieutenant Governor, James Breathitt, Jr., however, won by the narrow margin of 159 votes. Beckham campaigned against the system of legalized race track betting under the pari-mutuel plan, and against the State purchase of free school books for pupils, and ran heavily behind his ticket. Democratic majorities were elected to both houses of the Legislature. In the city of Louisville William B. Harrison, Republican, was elected Mayor at a special election. This election resulted from a contest over that held in 1925, when a Republican city and county ticket was put in office. The contest was first decided against the defeated Democrats in the Circuit Court at Louisville, February 15. On appeal the State Court of Appeals, June 14, reversed this decision, directed that the Republicans then serving, to the number of some 58, should cease to hold office, that the Governor should nominate officers to replace them temporarily, and that the places should be refilled by election in November. Governor Fields named to office the defeated Democratic candidates of 1925, Joseph T. O'Neal thus becoming Mayor. The new administration conducted an examination of the acts of the ousted officials, and attempted to purge the lists of permanently registered voters, of improper registration. Demand was made that 41,644 names be stricken from the State lists, on the Democrats' part, and their opponents countered by an even heavier number of challenges.

For purchase of the 72,000 acres of land overlying the Mammoth Cave, and adjoining scenic features, to be made into a National park, an association was formed, and opened in September a campaign to raise by private subscription $2,500,000. The movement for the purchase of the Cumberland Falls area, to be made into a State park, was advanced by the announcement October 2 that Senator T. Coleman du Pont of Delaware had offered to purchase the land and donate it to Kentucky. The Kentucky Utilities Company maintained that it held an option on the Falls site, but failed, up to the latter part of October, to obtain a power development permit from the Federal government. The United States Supreme Court sustained the State law allowing the State Tax Commission to alter the assessments of property made by the County Board of Supervisors, this law having been attacked by the Fordson Coal Co. The beginning of construction on a $1,000,000 State Hospital for the Criminal Insane at Lakeland was announced June 20.

Flem D. Sampson was inaugurated governor December 13. The State Supreme Court rendered a decision December 12 adverse to dog racing interests that had sought an order to compel the State authorities to permit betting on dog races, as on horse races.

OFFICERS. The following State administration was inaugurated December 13. Governor, Flem D. Sampson; Lieutenant Governor, James Breathitt, Jr.; Secretary of State, Ella Lewis; Attorney-General, J. W. Camack; Auditor, Clell Coleman; State Treasurer, Emma Guy Cromwell; Commissioner of Agriculture, Labor and Statistics, Newton Bright; Superintendent of Public Instruction, W. C. Bell.

JUDICIARY. Court of Appeals Judges: William Rogers Clay (Chief Justice), Gus Thomas, D. A. McCandless, R. P. Deitzman, M. M. Logan, William H. Reese. A vacancy caused by the resignation of Flem D. Sampson to become Governor was filled December 31 by the appointment of S. S. Willis.

KENTUCKY, UNIVERSITY OF. A State institution of higher education at Lexington, Ky.; founded in 1868. The enrollment in the autumn of 1927 was 2439, distributed as follows: seniors, 371; juniors, 473; sophomores, 576; freshmen, 769; special students, 81; graduates, 144. There were 1322 students registered in the 1927 summer session. The faculty numbered 212. The University consists of seven colleges: arts and sciences, agriculture, engineering, law, education, commerce, and the graduate school. The productive funds amounted to $184,075, and the income for the year was $1,209,300.96. The library contained 75,000 volumes. President, Frank LeRond McVey, Ph.D., LL.D.

KENYA COLONY AND PROTECTORATE (formerly the EAST AFRICA PROTECTORATE). A British colony and protectorate in East Africa lying on the Indian Ocean between the Umba and Juba rivers and extending inland as far as Uganda; a crown colony and protectorate since 1920. Area, 208,320 square miles, excluding Jubaland (35,812 square miles); population in 1926 estimated at 2,602,969, including 12,529 Europeans, 30,583 Asiatics, and 10,557 Arabs; Jubaland has about 16,000 inhabitants. Jubaland was acquired from Italy by the treaty signed between Italy and Great Britain July 15, 1924, and cession took place on June 29, 1925. Nairobi is the capital and has a population of 25,901 inhabitants, of whom 3612 are European. The largest town is Mombasa, with a population of about 39,727 of whom 822 are Europeans. In 1925 there were 16 government schools in operation including 6 European, and over 900 mission and native schools. The agricultural products include rice, coconuts, cotton, simsim, groundnuts, cassava, and sugar cane in the low lying areas. In the highlands where the temperature is moderate and the rainfall good, maize, wheat, sisal, and other crops of lesser importance are grown.

Evidence of the marked advance which the colony was making as an agricultural territory was convincingly brought out in the census figures for the year 1926, which were published in 1927. According to these returns, the area under occupation in the colony, as of July 31, 1926, was 4,587,817 acres—an increase over the previous year of 167,244 acres, or nearly 4 per cent. The number of land settlers advanced from 1695 in 1925 to 1809 in 1926, and the area under cultivation increased by 71,226 acres, or 18.4 per cent. The total area under cultivation in the latter year was 463,854 acres, of which 41.7 per cent was devoted to maize, 14.9 per cent to coffee, 13.7 per cent to sisal, 9.4 per cent to wheat, 1.9 per cent to coconuts, and 4.9 per cent to other crops, thus leaving 13.5 per cent fallow. The sudden expansion in cultivation of tea, which until quite recently had hardly gone beyond experimental planting, is an interesting feature revealed by the census. The area given over to tea growing is stated to be 1689 acres, and it is estimated that an additional 2000 acres would be planted during 1927. Practically all the tea output comes from one high-lying district, the Kericho, which has an exceptional rainfall well spread out over the year.

The merchantable forest covers an area of more than 3600 square miles, of which 316 miles are tropical. The mineral resources are considered rich but are not fully explored as yet. Kenya and Uganda (q.v.) are united under one customs tariff and hence the exports and imports of both are not separated. The chief imports are rice, other grain and pulse, liquors, salt, tobacco, coal, timber, building materials, cotton and woolen goods; the chief exports are cotton, coffee, maize, chillies, fibres, hides and skins, carbonate of soda, seeds, ivory, ground nuts, copra, and rubber. In 1925 the imports were valued at £8,061,448 and the exports £9,576,153. The budget estimates for 1927 were: Revenue, £2,580,955; expenditures, £2,534,937. The main railway line is the Mombasa-Victoria railway, owned by the state, with a length of 618 miles. In the latter part of 1927 the Kenya Legislature Council agreed to the building of two important branch lines, one from Kisumu to Yala in north Kavirondo traversing the native reserve for 30 miles; the second, from Gilgil, a station on the main line, to Thomson's Falls, 47 miles in length. The first of these was to cost £175,000, which would come out of the 1923 transport loan of £3,500,000, while the Thomson's Falls branch would cost £265,000. The colony is governed under the constitution of December, 1925, which provides for an executive and legislative council. Governor and Commander-in-Chief in 1927, Lieut.-Col. Sir Edward W. M. Grigg.

KENYON COLLEGE. A college of arts and sciences for young men at Gambier, Ohio; established in 1824 by the Protestant Episcopal Church, and connected with it. The enrollment is limited to 250 young men. The number registered for the autumn of 1927 was 260. The faculty numbered 21 members, including the following appointments made during the year: Frank J. Walrath, Ph.D., assistant professor of economics; C. M. Coffin, assistant professor of English; the Rev. Lewis J. Bailey, college chaplain. The endowment funds amounted to $1,617,000, and the income for the year to $203,000. The library contained 45,000 volumes. President, William F. Pierce, L.H.D., D.D., LL.D.

KERNITE. See Mineralogy.

KERR, Lord Walter Talbot. British admiral, died at Melbourne Hall, Derby, England, May 12. He was born at Newbattle Abbey, Scotland, Sept. 28, 1839. After studying at Radley College, he entered the British navy in 1853. He was one of the last survivors of the Crimean War and the Indian Mutiny. After advancing through several navy grades, in 1885 he went to the Admiralty in London as private secretary to the first lord of the Admiralty. He was second in command of the British fleet in the Mediterranean, 1890–92, junior lord of the admiralty, 1892, second lord, 1894–95, commander of the Channel squadron, 1895–97, and senior naval lord of the admiralty, 1899–1904. He became an admiral of the fleet in 1904, and retired in the same year. He was made a Knight Commander of the Order of the Bath in 1896 and received the grand cross of the same order in 1902.

KERSHAW, John Felix. Anglo-Egyptian jurist, died at London, June 17. He was born Nov. 20, 1873, and was educated at the Shrewsbury, England, School, and Balliol College, Oxford University, winning honors in history and law. He was called to the bar in 1897, and after practicing in the northeastern circuit of England became a judge of the court at Khartoum, Egypt, in 1902. Three years later he became a judge of the court of first instance at Cairo, Egypt, and in 1913 he was appointed to the bench of the native appeal court. He resigned from the Egyptian bench in June, 1926, after six men, accused of complicity in the murder of Sirdar Sir Lee Stack, had been acquitted by Kershaw's two native colleagues. For a short time before his death he was judge of the Southwark, Greenwich and Woolwich county courts, England. Judge Kershaw wrote: *Hints on Criminal Investigation* (1907); *Reply to Charges of Atrocities Alleged Against British Soldiers* (blue book) (1909); *Causes of Alexandria Riots* (blue book) (1921).

KIAOCHOW, kyä′ōchu′. A former German possession now in the hands of China. It comprises a city, harbor, and district on the eastern coast of the province of Shantung; seized by Germany in November, 1897; captured by Japan in November, 1914; administered by Japan, under a mandate in accordance with the Treaty of Versailles, but returned to China by Japan, Dec. 1, 1922, in accordance with the Washington agreement, Japanese troops evacuating two weeks later. The land area is about 200 square miles; population about 227,000, but, including a neutral zone around the bay with an area of some 2500 square miles, the population is estimated at 1,427,000. The chief city and port is Tsingtao.

KIPUSHITE. See Mineralogy.

KIRKWOOD, Irwin. American newspaper owner and editor, died at Saratoga Springs, N. Y., August 29. He was born at Baltimore, Md., Dec. 30, 1878. After education at public and private schools, he went to Kansas City, Mo., in 1905 as a real estate salesman, and there met and married Laura Nelson, daughter of the late Col. William R. Nelson, founder of the *Kansas City Star.* Colonel Nelson died in 1915, and Mr. Kirkwood became connected with the direction of the newspaper as representative of the trustees of the Nelson estate. Mrs. Nelson died in 1921 and Mrs. Kirkwood in 1926, and their deaths released an estate of more than $10,000,000 for an art museum in Kansas City. The *Star* was to be sold to the highest bidder, and a stock company headed by Mr. Kirkwood bought the property. As editor, he was a leader in public affairs in Kansas City. Associates of Mr. Kirkwood in the management of the *Star* arranged after his death to buy his stock in the newspaper.

KIRLIN, J(oseph) Parker. American lawyer and authority on admiralty law, died at New York, December 22. He was born at Scranton, Pa., Dec. 5, 1861, and studied at the University of Virginia, Columbia College, 1883, and the law school of Columbia University, 1884. In 1889 he became a member of the firm of Convers & Kirlin, which specialized in commercial and maritime law, and represented extensive English interests. He was engaged in many important admiralty cases developing out of the World War, such as those connected with the *Lusitania* and the *Kronprinzessin Cecile* when the latter returned to the United States with a cargo of gold bars, instead of delivering it to ports of the Allies. During the period of the participation of the United States in the War he was general counsel to the Shipping Control Committee.

KIWANIS CLUBS. Clubs made up of two of the leaders in each business and profession in the community, united for the rendering of civic and social service to the community. Each club enjoys autonomy but at the same time functions in direct connection with district and international administration. There are twenty-nine geographical districts, each with a governor, on the North American continent. The first club was organized at Detroit, Michigan, in January, 1915. The first national president was George F. Hixson, elected in May, 1916, and elected international president in 1917, the organization having spread into Canada. The name "Kiwanis" is a word coined to express the constructive, unselfish work of Kiwanians. The motto of the organization, "We Build," is also an expression of its spirit. Its aims are to crystallize community sentiment for municipal improvements, to cultivate public opinion for purer politics, and to promote community coöperation in all good things. The international organization at the close of the year 1927 was made up of 1673 clubs, with an approximate membership of 100,000. Henry C. Heinz, Atlanta, Ga., was the international president for 1927–28; Ralph A. Amerman, Scranton, Pa., was the immediate past president; Fred. C. W. Parker, secretary; Raymond M. Crossman, treasurer. The headquarters office is in the Federal Reserve Bank Building, 164 West Jackson Boulevard, Chicago, Illinois.

KNIGHT, AUSTIN MELVIN. American naval officer, died at Washington D. C., February 26. He was born at Ware, Mass., Dec. 16, 1854, and graduated at the U. S. Naval Academy, 1873. He took part in the Cuban blockade and the Porto Rican campaign, 1898, and was head of the department of seamanship at the Naval Academy from 1898 to 1901. He served as president of the special board on naval ordnance and was president of the joint army and navy board on smokeless powders in 1904–07 and in 1909. Later he became commandant of the Narragansett Bay, R. I., naval station and in 1913 president of the Naval War College, having become a rear admiral in 1911. He had a famous controversy in 1911 with Secretary of the Navy Daniels over the "gag rule," and he told the House of Representatives committee on naval affairs that the United States navy was only 50 per cent efficient. In 1917 he became commander of the Asiatic fleet, with the temporary rank of admiral. He retired in 1918. He wrote: *Modern Steamships* (1901).

KNIGHTS OF COLUMBUS. A fraternal society for Roman Catholic men, organized under a special charter granted by the General Assembly of the State of Connecticut, Mar. 29, 1882. The Order is composed of a Supreme Council, a Board of Directors, and State and subordinate councils. On June 30, 1927, there were 61 State councils and two territorial jurisdictions. The 2498 subordinate councils had a membership of 690,732. Of these, 238,889 were insurance members and 451,843 associate members. These two classes developed through deviation from one of the chief purposes of the organization, to urge Roman Catholic men to insure provision after death for those dependent upon them, but expansion in membership permitted others to join the associate class with certain restrictions as to their rights. By the step-rate plan of insurance adopted in 1902, every insured member pays the cost of his own insurance at his own age. The four principles of the order are charity, unity, fraternity, and patriotism, emphasizing to members the necessity of rendering service in time of illness, death, or distress, the gathering together of men for better citizenship, the value of mutual assistance, and loyalty to duly authorized civil government.

The society offered to ex-service men evening courses in academic, commercial, and trade or technical subjects free of charge; and correspondence courses for ex-service men and other members of the order. Since 1922 the Knights of Columbus organization had devoted itself to supporting a programme of Boy Work. As a result of a year's study and consultation with authorities in this field, a two years' course in Boy Guidance work was introduced at Notre Dame University, which is open to all college graduates and leads to a degree of Master of Arts, under the supervision of a Chair in Boy Guidance, established at the University by the order. Later developments of this programme have led to the establishment of a number of Circles of Columbian Squires, as the Junior Order is called. Another activity of the organization was the furtherance of a campaign of education inaugurated in 1926 to eliminate the influence of Soviet Russia upon the philosophy of American life, in which 4,000,000 pamphlets, containing information upon Mexico, were distributed; in addition, lectures, concerning activities in Mexico, were given throughout the United States.

The Order publishes monthly *Columbia,* a magazine devoted to up-to-date fiction, verse, editorials, articles on business, sport, arts, literature, sociology, religion, and the ordinary interests of the ordinary man, which had a circulation in 1927 of almost 800,000. The headquarters of the Supreme Council are located at New Haven, Conn., and the officers in 1927 were: Martin H. Carmody, supreme knight; John F. Martin, deputy supreme knight; William J. McGinley, secretary; D. J. Callahan, treasurer; Edward W. Fahey, M.D., physician; Luke E. Hart, advocate; the Rt. Rev. Mgr. P. J. McGivney, chaplain; David F. Supple, warden.

KOEHLER, HERMAN J. American army officer and master of the sword at the U. S. Military Academy, died at New York, July 1. He was born in Wisconsin, Dec. 14, 1859. He served at the Military Academy thirty-nine years, and was credited with doing much to elevate and maintain the physical condition of the cadets. He was an accomplished master of every form of swordsmanship, and developed efficient systems of physical training. For his services at the Military Academy he received the rank of lieutenant colonel in the United States army, in 1918, and he held that rank when he retired from active service in 1923. He received the Distinguished Service Medal.

KONGO, BELGIAN FREE STATE, and FRENCH. See CONGO.

KOREA or CHOSEN. A peninsula of eastern Asia, belonging to the Japanese Empire since the treaty between Japan and Korea, Aug. 22, 1910. Capital, Seoul.

AREA AND POPULATION. The area is given at 85,223 square miles; population, according to the census figures of Jan. 1, 1925, 19,519,927, as compared with 17,288,989 in 1920. The foreigners number slightly more than 35,600, the vast majority of whom are Chinese. At the end of 1924 the largest cities with their populations were: Seoul, 297,465 (77,587 Japanese); Pusan, 82,393 (35,926 Japanese); and Pyong-Yang, 102,674 (21,672 Japanese).

EDUCATION. In 1924 there were for the education of Japanese 447 elementary schools with 53,397 pupils, 10 middle schools with 3957 pupils, 1 medical school, 1 technical high school, 21 girls' high schools, 1 commercial high school, 1 law school, and various kindergarten and private schools. For the education of the Koreans there were 1155 common schools with 334,415 pupils, 63 private common schools with 11,634 pupils, 14 higher common schools, 8 private and 2 higher common schools for girls, besides various industrial schools, a medical and technical college at Keijo. On Mar. 31, 1924, there were 1815 schools of all kinds with 430,163 pupils. In September, 1926, a University was opened at Seoul with 142 students.

PRODUCTION. Korea is a wholly agricultural country according to the *Financial and Economic Annual* of Japan, and farming is its most important industry. The fields are almost always cultivated on a small scale and are owned by the richer classes. Rice is the staple agricultural product, followed by barley, Italian millet, soy beans, wheat, and red beans. There are also special products such as cotton, tobacco, hemp, and ginseng. The cultivation of fruit trees has of late produced very good results. Silk culture was being carried on on a large scale under government encouragement. Livestock is raised as a by-product of agriculture, and cattle, horses, goats, and pigs are found everywhere in the country; but stock farming is not pursued as an independent enterprise. The production was, in 1925, 73,317,426 bushels of rice; 37,789,482 bushels of barley; and 133,890,367 bushels of soya beans. The estimated rice crop in 1926 was 77,409,393 bushels. The principal native industrial products of Korea are textile fabrics, paper, pottery, metal ware, manufactured tobacco, brewed drinks, and leather. These industries are mostly carried on as subsidiary house industries. The principal mineral products are gold, silver, zinc, copper, lead, iron, tungsten ore, graphite, coal, quartz sand, and kaolin. Gold mining on a large scale has hitherto been carried on mainly by Europeans and Americans; but large mine-owners in Japan have of late commenced mining various metals and nonmetals in the peninsula. The total yield of all the mines of Korea in 1925 was valued at the sum of 20,876,964 yen.

Commerce. The foreign trade of Korea in 1925 amounted to 681,642,314 yen of which 341,630,533 was the value of exports and 340,011,781 that of imports; these figures show, when compared with those of the preceding year, an increase of 12,591,439 yen or 3 per cent in exports, and an increase of 30,418,445 or 10 per cent in imports, and an increase of 43,009,884 or 7 per cent in total trade. The principal exports were grains, flours, starches, seeds, yarns, threads, twines, tissues, clothing and clothing accessories; the principal imports, cotton tissues and manufactured articles.

Finance. In compiling the budget for the year 1926–27 an effort was made to economize in expenditures because of the serious condition of the Japanese treasury (See Japan). But some unavoidable increased expenditures were necessary for the encouragement of industry, especially the establishment of facilities to increase the production of rice which is urgently needed; for reforestation and river improvement as a fundamental preventive of floods, the necessity for which has been more than apparent since the severe damage done by the floods of the summer of 1925; and for the opening of the Imperial University at Keijo (Seoul). The revenue and expenditure for 1926–27 balanced at 192,825,154 yen, as compared with 178,082,383 yen in 1925–26.

Communications. The shipping that entered at the open ports in 1925 had a tonnage of 6,555,809, and those that cleared a tonnage of 6,151,076. In 1925–26, 1309.10 miles of railway were open to traffic. The rolling stock consisted of 242 locomotives, 595 passenger cars, and 2766 freight cars. The number of passengers carried was 18,241,062 and the weight of the freight was 4,297,266 tons.

Government. Korea is considered an integral part of Japanese territory. The governor at the beginning of the year was Viscount Minoru Saito (appointed September, 1919). On Dec. 9, 1927, it was announced that the Japanese government had decided to appoint Hanzo Yamanashi, former Minister of War, Governor-General of Korea to succeed Viscount Saito, who resigned.

KOWEIT, Sultanate of. See Arabia.

KROUT, Mary Hannah. American journalist and author, died at Crawfordsville, Ind., June 1. She was born at Crawfordsville, Nov. 3, 1857. She was educated at home, and taught school, 1872–87. Her first journalistic position was that of associate editor of the *Crawfordsville Journal*, 1881, and from that paper she went first to the *Terre Haute Express*, Terre Haute, Ind., and then to the *Inter-Ocean* of Chicago. She remained with the latter paper ten years, and served as its staff correspondent in Hawaii, New Zealand and Australia, and at London. She wrote also for the *New York Tribune* and the *Denver Times*. Her books include: *Hawaii and a Revolution* (1899); *A Looker-on in London* (1900); *The Coign of Vantage* (1909); *The Eleventh Hour* (1921). She compiled also several historical works and biographies, and completed the memoirs of General Lew Wallace.

KU KLUX KLAN. There were evidences during the year that this movement was disintegrating. Major scandals involved the organization in three States. In Alabama, the State Attorney General, a Klansman, resigned and took issue with the Governor, another Klansman, declaring that loyalty to the State came first. In Pennsylvania two factions of the order fought each other.

Observers reported a general falling off of interest. Senator Carter Glass, for example, declared that the Klan was stronger in the North than in the South. In Georgia, Mississippi, and Louisiana the Klan was giving way. In New Jersey, where the organization still had political influence, there were few signs during the year of an attempt to influence public opinion. With the recession of the war period, prejudice appeared to be relaxing.

In the January, 1928, *World's Work* (published in December), Imperial Wizard Hiram Wesley Evans' article on the Klan appeared to be on the defensive. He sought to explain away the Klan's sordid history in Indiana; sensing the Klan's loss of power in several States, he spoke of new gains in least expected quarters. The old shibboleths were raised: "individual liberty"; "freedom of conscience (that is, in effect, Protestantism)"; "our forefathers came here to escape European civilization"; the Democratic party must be rescued from "alienism, Roman Catholicism, wet nullification and the bosses." In short, Mr. Evans found in the Democratic party "an absolute division between the native, American-minded, Protestant, dry, and conscientious Democracy of the South and the West, and the alien, Catholic, boss-ruled, wet, nullificationist Eastern Democracy, with priests instead of consciences." The intimation was that Governor Smith would be fought in the Democratic Party convention.

To this Governor Smith's reply was quick and honest. In a letter written on December 29 to a Klansman of Queens, New York, he said: "I regard the purposes of your organization with abhorrence and I consider them subversive of the fundamentals of American democracy. Nevertheless, in so far as it lies within my power under the law I would accord to you exactly the same even-handed justice that I would give to anybody else."

New York. Governor Smith's letter had been occasioned by a complaint lodged with him by Queens Klansmen. In a Memorial Day parade in that borough, it had been charged, Klansmen, marching in regalia but unhooded, had been clubbed and dispersed by New York City policemen. Mayor Walker defended the police on the ground that the Klansmen had no permit to march. But it was agreed that they had, and that the offensive had been taken by the policemen. Governor Smith's point that remedy lay in the courts appeared well taken, however.

ALABAMA. The break in the Klan ranks in this State came as a result of a series of unprecedented floggings that had taken place over the year. The demand of a few newspapers compelled the Crenshaw County grand jury to return 110 indictments. The presentment of the jury found that the floggings had been committed by Klansmen and the State's Attorney General, himself a Klansman, courageously set out to prosecute. On October 19 it was reported that Attorney-General C. C. McCall, preliminary to handling the trials, had resigned from the order. But the trials ended abruptly November 30, when the Attorney General withdrew after two men had been acquitted. Mr. McCall charged that "the State law enforcement officers had shown a frenzied desire to assist the defense instead of assisting prosecuting officials," that the Klan had been making efforts to intimidate him, and that the Governor was too busy to interest himself. An interesting sidelight on the trials was thrown by one witness who refused to testify because he held the law of the Klan superior to that of the State.

PENNSYLVANIA. Evidences of a feud between Klan factions were revealed in this State, in October, when a suit was filed for $100,000 damages against a group of ousted members for still operating under the Klan name. The defendants, in return, charged the Klan with the misuse of $15,000,000, of fomenting disorders to encourage membership, and of collecting money "for other than corporate, benevolent, religious, and charitable purposes." It was charged that part of the money went toward "building a $20,000,000 palace for the Imperial Wizard at Atlanta, Georgia" and "for the purchase of a diamond tiara valued from $30,000 to $100,000 for the Imperial Commander or chief officer of women, of the Klan." The ousted action asked for an injunction to prevent the Klan from operating in the State, as well as a receivership.

KURDISTAN, kōōr'dē-stăn'. A more or less vague term applied to a region in eastern Asia Minor, comprising a portion of Turkey and the northern section of the vilayet of Mosul in the new independent state of Irak (See MESOPOTAMIA). The inhabitants are Kurds, a seminomadic people related to the Persians in race and language. The population is estimated at 2,500,000. Shortly after the World War there was an attempt to create an independent Kurdistan. The movement was completely crushed by the failure of the Treaty of Sèvres, after which the remaining Kurds divided in political allegiance to the Turkish, Persian, and Mesopotamian governments.

KWANGCHOW-WAN, kwăng'chō'wăn. A small territory on the coast of the Chinese province of Kwangtung, leased to France in 1898, and two small islands commanding the bay leased to her in the following year. Area, about 190 square miles; population estimated at 208,044. In 1925 the imports were valued at 6,735,239 piastres and the exports at 5,844,992 piastres. The chief imports are cotton yarns, opium, and petroleum; the chief exports, straw sacks, swine, and mats. The port is free and is regularly visited by two French steamship companies. In 1925, 296 vessels of 130,000 tons entered. The local budget for 1926 balanced at 558,000 piastres. The administration is under the governor-general of French Indo-China.

KWANGTUNG, kwăn'tung', or KWANGTAO. A territory at the southern part of the Liaotung peninsula, leased to Japan by China, as a successor to Russia after the Russo-Japanese War. Area, about 538 square miles; population, Oct. 1, 1924, 1,056,076, of whom 856,385 were Chinese, 186,045 Japanese, 10,850 Koreans, and 2796 Americans and Europeans. The latest statistics on education showed 49 elementary schools with 20,521 pupils for the instruction of Japanese, and 128 schools with 22,709 pupils for the instruction of natives. The agricultural products include rice, tobacco, hemp, and various grains and vegetables. The fishing industry is of importance. There is an abundance of salt which is the chief manufactured product. Trade is mainly with Japan and China. Imports in 1923 were valued at 96,088,053 haikwan taels and exports at 133,438,067 haikwan taels. The seat of the administration and the chief port is Dairen, formerly Dalny. The territory is under a Japanese governor general.

LABOR. Discussion of various aspects of the economics of labor will be found under the following heads: CHILD LABOR; COÖPERATION; LABOR ARBITRATION AND CONCILIATION; LABOR LEGISLATION; MINIMUM WAGE; OLD-AGE PENSIONS; STRIKES AND LOCKOUTS; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION; and in articles on the respective countries.

The year saw no outstanding changes in the status of the working populations. Among the significant events of the year may be chronicled the following: The passage of the trade disputes and trade-unions act in England whose purpose was to hamper seriously the effectiveness of the British trade-unions. (See TRADE-UNIONS and GREAT BRITAIN.) The long continued strike in the bituminous coal fields. (See STRIKES AND LOCKOUTS.) The attitude taken by the American Federation of Labor toward wage disputes and its decision to make hereafter full scientific inquiry into productivity as a basis for wage agreements. (See LABOR, AMERICAN FEDERATION OF.) The attitude of the manufacturers toward child labor. (See CHILD LABOR.) The rising sentiment for old-age pension legislation. (See OLD AGE PENSIONS.)

INJUNCTIONS. The year saw, too, American labor taking a firm stand against the overzealous exercise of the injunction power by the courts. (See the resolution passed at the A. F. of L. convention in article, LABOR, AMERICAN FEDERATION OF.) One of the most sweeping injunctions handed down against American labor was that directed against the United Mine Workers of America by Federal Judge F. P. Schoonmaker in the suit brought by the Pittsburgh Terminal Coal Corporation, September 30. The court upheld the company's contention that the United Mine Workers were acting in violation of the Sherman and Clayton Acts, and that the workers were illegally possessing the company-owned houses. The court decree forbade union pickets from entering company grounds and from using "abusive language." The character of the injunction may be evinced from this clause:

"Any act which might interfere with the production, mining, transportation or shipment of coal is restrained. Trespassing on company property, loitering near such property or parading in the vicinity of the mines is forbidden, except picket posts on roads leading to the workings. Such posts must be 100 feet from the nearest company building, and must be marked to show it is a union picket point."

At Pittsburgh, on November 14, a conference of labor leaders met to consider labor's stand on the question. The meeting was called by the American Federation of Labor and turned into an open attack on the Pennsylvania political administration, the railroads and the public utilities. It was charged that Governor Fisher was friendly to the coal operators and had authorized the commissioning of "coal and iron police" whose wages were being met by the operators. In describing the conditions of the striking miners, many of whom had been out since April in western Pennsylvania, one speaker told of 8000 evictions, the importation of 175,000 colored strikebreakers, and general terrorization by gunmen. President Green of the American Federation of Labor intimated that organized labor would go into the Pennsylvania primaries to defeat the Fisher administration.

Another important injunction dispute loomed, at the end of the year, when the New York Interborough Rapid Transit Co. announced it would seek a sweeping injunction against the American Federation of Labor to restrain organized labor from unionizing New York's subway workers. The American Federation of Labor in filing its answer to the company's injunction action, particularly attacked the "yellow-dog" contract which subway employees were compelled to sign. This binds them to the company union and to no other and prohibits them "from speaking, writing, or printing their opinion on trade-unions and from assembling in groups to discuss the subject." By the end of the year the Supreme Court had not yet announced its decision.

But trade-unionism in New York won a victory for peaceful picketing in the Exchange Bakery case. In 1925 the proprietors of the bakery obtained an injunction to enjoin union leaders from "patrolling the sidewalks and street in front of the restaurant and from approaching, accosting, threatening, assaulting, or intimidating other persons desiring to enter the premises." The lower courts vacated the injunction, while the Appellate Division reaffirmed it. In the spring of the year the Court of Appeals handed down an opinion holding that "it is lawful for a union to initiate strikes and to picket shops where other workers not their members work." The opinion went on to say:

> The purpose of a labor union to improve the conditions under which its members do their work, to increase their wages, to assist them in other ways, may justify what would otherwise be a wrong. So would an effort to increase its numbers and to unionize an entire trade or business. It may be as interested in the wages of those not members or in the conditions under which they work as in its own members, because of the influence of one upon the other. . . . Economic organization today is not based on the single shop.

Wages and Hours. The Bureau of Labor Statistics indicated that union wage rates continued, during 1927, their uninterrupted rise of the last 20 years. A survey made of the 73 time-work trades in 66 cities, and including over three-fourths of a million organized workers, showed an average hourly rate of $1.19 as compared with $1.115 in 1926. In the 73 time-work trades surveyed, 64 showed wage increases (see Table I) for 1927, while only 9 reported losses. Hours of labor were reduced, too, the average for 1927 being 45.2 per week. If 1927 conditions are compared with 1913, union wage rates show an increase of 159.5 per cent and full-time hours a decrease of 7.6 per cent. (See Table II.) On the other hand, there was a large class of unskilled labor whose wages were wretchedly low. Secretary of Labor Davis estimated that the group, including families and dependents, made up from ten to fifteen millions of people. No complete data were in existence for this class of the laboring population. The Bureau of Labor Statistics had compiled some material in a group of industries and these data are presented in Table III.

TABLE I.—AVERAGE HOURLY WAGE RATES IN SPECIFIED TRADES IN 1926 AND 1927 AND INCREASE, 1927 OVER 1926

Trade groups	*Average hourly wage rate*		*Increase, 1927 over 1926*
	1926	*1927*	
Bakers	$0.925	$0 957	$0.032
Building trade workers	1.278	1.323	.045
Chauffeurs, teamsters, and drivers	.663	.704	.041
Granite and stone cutters	1.330	1.321	[a].009
Laundry workers	.441	.432	[a].009
Linemen	.993	.991	[a].002
Longshoremen	.835	.817	[a].018
Printing and publishing.			
Book and job	.997	1.021	.024
Newspaper	1.155	1.190	.035
Motormen and conductors	.662	.682	.020
Average for all trades [b]	1.148	1.190	.042

[a] Decrease.

[b] Not including piece-workers or street-railway motormen and conductors.

TABLE II.—INDEX OF UNION WAGE RATES AND HOURS OF LABOR IN THE UNITED STATES AS OF MAY EACH YEAR, 1907 TO 1927

[1913 = 100]

Year	*Index numbers of—*		
	Rate of wages per hour	*Full-time hours per week*	*Rate of wages per week, full time*
1907	89.7	102.6	91.5
1908	91.0	102.1	92.5
1909	91.9	101.9	93.8
1910	94.4	101.1	95.2
1911	96.0	100.7	96.5
1912	97.6	100.3	97.7
1913	100.0	100.0	100.0
1914	101.9	99.6	101.6
1915	102.8	99.4	102.3
1916	107.2	98.8	106.2
1917	114.2	98.4	112.4
1918	132.7	97.0	129.6
1919	154.5	94.7	147.8
1920	199.0	93.8	188.5
1921	205.3	93.9	193.8
1922	193.1	94.4	183.0
1923	210.6	94.3	198.6
1924	228.1	93.9	214.8
1925	237.9	93.0	222.3
1926	250.3	92.8	233.4
1927	259.5	92.4	240.8

Productivity. Interesting light was thrown on the character of the new industrial revolution in America by the 1925 survey of manufacturing figures published by the Bureau of Census. It was shown that the number of wage earners had diminished over the period 1919–25,

TABLE III
AVERAGE WEEKLY EARNINGS OF MALE COMMON LABORERS IN VARIOUS INDUSTRIES AND DISTRICTS

Industry	Average full-time hours per week [a]	Average full-time earnings per week [a] Lowest district	Highest district	All districts
Lumber (1925)	57.5	$10.48	$25.27	$17.77
Slaughtering and meat packing: All departments (1925)	50.2	17.04	25.34	21.35
Woolen and worsted goods manufacturing (1926)	49.4	20.77	27.82	21.98
Machine shops (1925)	50.6	11.78	25.32	23.07
Paper box-board manufacturing (1925)	56.7	13.37	28.05	23.99
Blast furnaces (1926)	62.4	16.14	27.72	24.34
Foundries (1925)	52.5	14.37	28.67	25.25
Motor vehicle manufacturing (1925)	50.4	24.02	30.26	28.73
Bituminous coal mining (1926): [b]				
Inside laborers	...	10.34	33.90	22.78
Outside laborers	...	11.03	37.69	23.58
Anthracite coal mining (1924): [b]				
Inside laborers	...	....	....	29.42
Outside laborers	...	....	....	29.45
Metalliferous mines, underground (1924)	52.1	19.80	27.73	22.04
Railroads: Track laborers (1926) [c]	47.5	....	....	17.00

[a] Except in the case of coal mining and railroads, where the only available data are for actual earnings and actual hours.

[b] The weekly earnings are computed as equal to seven-fifteenths of the half-month earnings reported.

[c] Weekly earnings are computed as equal to one fifty-second of the annual earnings reported by the Interstate Commerce Commission.

while the value of the product produced had been greater (in dollars). Note these figures:

	1919	*1923*	*1925*
Wage earners ....thousands			
Wages earned ....millions.	$10,453	$10,999	$10,719
Average wage	$ 1,163	$ 1,254	$ 1,180
Value added .....millions.	$24,748	$25,778	$26,775
Added per worker	$ 2,853	$ 2,940	$ 3,194
Horse power ....thousands	29,298	33,057	35,735

The Bureau of Labor statistics, as well, was doing pioneer work in the study of productivity. The following table presents the rapid strides made, using the 1919 figures as the base of 100.0.

INDEX NUMBERS OF WAGE EARNERS IN MANUFACTURING INDUSTRIES, OF POPULATION, OF WAGE EARNERS PER 1,000 POPULATION, AND OF QUANTITY OF MANUFACTURED GOODS PRODUCED

Year	*Wage earners in manufactures*	*Population*	*Wage earners per 1,000 population*	*Quantity manufactured*	*Quantity manufactured per wage earner*
1919	100.0	100.0	100.0	100.0	100.0
1921	77.2	103.3	73.9	78.6	101.8
1923	97.5	106.4	90.7	120.2	123.3
1925	93.3	109.9	83.9	125.0	134.0

In short, the index numbers reveal that the number of wage earners in manufacturing industries fell off one-fourth between 1919–21. The year 1925 was still below 1919. In fact between 1919–25, wage earners decreased 6.7 per cent while population increased 9.9 per cent, while the quantity per wage earner increased 34 per cent. It is believed by the Bureau that the figures are representative in view of the fact that the following industries have been included: iron and steel, textiles, food products, paper and printing, lumber, automobiles, leather and shoes, cement, brick, glass, nonferrous metals, petroleum refining, rubber tires, and tobacco. For further details, the reader may consult the *Monthly Labor Review* files for 1927 and Rexford G. Tugwell's *Industry's Coming of Age* (New York, 1927). See CHILD-LABOR; TRADE-UNIONS.

LABOR, AMERICAN FEDERATION OF. The American Federation of Labor held its forty-seventh annual convention at Los Angeles, October 3–14. The report of the executive council indicated that for the year there was a paid-up membership of 2,812,407, a gain of 8441, over 1926. The executive council recited the following as the achievements of the organization over the year: The general acceptance by the labor movement of the desirability of the 5-day week. Amicable arrangements between employers and employees for the creation of more constructive status for employees. Examples cited were joint determination of production standards, rewards for craftsmanship, etc., and the maintenance of union wage standards.

Labor announced it as its intention to make intensive studies of government statistics to see not merely if wages were commensurate with the cost of living but with productivity as well. The report said: "For the first time labor is exploring the field of government statistics to ascertain whether its share in national income is equitable and whether wages paid to wage earners will enable them to share in advances in material civilization." Labor education was again urged and the favorable work of the Workers' Education Bureau commented on. Trade-unionists were told that "there can be no compromise with Communists."

The report urged labor to take action on the following: Formulation of old-age schemes by unions. Investments of trade-union funds in view of the over-expansion of the labor banking field. The report said, "the time has come to stop expansion in the field of labor banking until experience with those labor banks already organized shall have been critically studied and evaluated."

The executive council finally pointed out that the following problems were of major importance to labor to-day: 1. A clarification of the legal status of unionism, particularly in equity courts. Toward this end there are necessary amendments of anti-trust and anti-combination legislation that the right of association may not be questioned. The use of the "yellow-dog contracts" is objectionable and legislative efforts to declare these illegal are commended. 2. The unionization of highly machinized industries is declared a necessity. "There is need for study of the mass production industries in order that we may know the probability of industrial development in this direction." 3. Necessity for continuous stimulation of unionists' interest and loyalty in trade-union activities via publicity, education and additional benefits and services such as "investment advice and opportunities, insurance, employment service, unemployment aids and old-age pensions." 4. The unsound position of the company unions is pointed out. They are essentially paternalistic and their intention is to keep the worker bound to the job. The trade-unionist should look forward to "union management coöperation—the joint activity of two equal groups, which is much more fundamental and effective than employee representation plans for coöperating with management."

The convention itself was rather tame. There were opening addresses by Secretary of Labor Davis in which he deplored jurisdictional disputes and praised the Federation's restrictive immigration policy, and by British fraternal delegates who spoke of the need of international organizations for labor, etc. Resolutions submitted to the committee called for the inclusion of Mexicans and Canadians in the quota law, the establishment of old-age pensions, Philippine independence, approval of the Boulder Dam project, condemnation of Fascism in the United States. For the first time in eight years, recognition of Soviet Russia was not urged. John P. Fry, who first had broached the question of basing wages on productivity at the 1925 convention, attacked the current talk of prosperity, insisting that it was applicable only to highly organized employees. It was pointed out from the floor, too, that the injunction was increasingly being used as an anti-labor weapon and that labor's right to strike, underwritten by the Clayton Act, had been destroyed by the Supreme Court in the "Duplex Case." Trade-unionists were urged to defy the injunction. The executive council vindicated the Mexican Federation of Labor from the charge that it was the tool of the Mexican government, in a lengthy report.

Resolutions of the following tenor were adopted: An American merchant marine and an eight-hour day for sailors. The study of mass-production industries for the purposes of unionization. Expressing appreciation of the fights waged by several unions on "Communist political adventures." The "yellow-dog contract" was a menace. The executive council was to make a thorough study of company unions in order to expose them. Denouncing Federal court decisions which deprive workmen of the right to work. Education was to be strengthened. The Worker's Education Bureau's research department was endorsed. Self-government for Porto Rico and independence for the Philippines were urged. Rigid immigration restrictions were reaffirmed. The convention attacked the evidences of Fascism in America, President Green linking it with Communism. Conscription and military education in non-military schools were opposed. The executive council was endorsed in its stand on old-age pensions, expansion of labor banks, need for the five-day week, and fight on child labor. The Federation declared its continued nonpartisanship in politics. Certain other resolutions, notably approval of the Boulder Dam project and a call on the Labor Department for economic research as it affects labor, were referred to the executive council. No action was taken on affiliation with the Amsterdam International Federation of Trade-Unions. Besides President William Green the following officers were reëlected: James Duncan, first vice president; Frank Duffy, second vice president; T. A. Rickert, third vice president; Jacob Fischer, fourth vice president; Matthew Woll, fifth vice president; Martin F. Ryan, sixth vice president; James Wilson, seventh vice president; James P. Noonan, eighth vice president; Daniel J. Tobin, treasurer; Frank Morrison, secretary. New Orleans was chosen for the 1928 convention.

LABOR ARBITRATION AND CONCILIATION. The U. S. Secretary of Labor reported that for the fiscal year 1927 his department had been called upon to handle 554 trade disputes. Of these, 24 cases were still pending, 345 cases (with 41 more, from the preceding fiscal period) were adjusted; while 69 cases were closed without the department's assistance and 57 were unadjusted. In the 545 trade disputes, 575,723 workers were affected. The Secretary wrote of the success of the Conciliation Service:

> Official experience shows that in approximately 85 per cent of the cases submitted to the Conciliation Service for mediatory counsel, satisfactory settlements have been secured, and this has been accomplished under the theory and practice that commissioners of conciliation have no power to compel contesting parties to accept mediation. Neither have they authority to make awards or decide issues in dispute. Their duties are, rather, to negotiate, advise, and counsel with management and men, with the view to bringing about industrial peace upon the best possible basis for all concerned.

In speaking of the success of these voluntary efforts the Secretary declared that American employers and employees appeared averse to the use of compulsory arbitration.

The services performed by the Department may be ascertained from the following partial list of disputes handled:

> Porto Rican-American Tobacco Co. Strike involved 3000 cigar makers of Porto Rico. Strike had lasted from August, 1926, to January, 1927, when the Department was called in. Workers' demands prevailed and strike was settled after a loss to the company of $1,000,000 and to the workers of $3,500,000 in wages.
>
> Transue-Williams Steel Forging Corporation. Men struck because of further mechanization of their work with seeming wage reduction. A Department Commissioner gained a guaranty for the men and they returned to work.
>
> Musicians, motion-picture houses, Chicago. A four-day strike occurred in which 3000 musicians were involved. As a result of a commissioner's offices the strike was called off pending arbitration.
>
> Fur Workers, Boston, Mass. 10,000 men went out for a 40-hour week and limitation of apprentices. The strike was amicably settled through the Department's intercession.

RAILROAD LABOR ACT. By the Railroad Labor Act of 1926 machinery was set up for the settlement of labor disputes through a Board of Mediation. In cases of dispute, where mediation is unavailing, special boards of arbitration may be set up made up of representative members of both sides as well as neutral parties. Decisions of the arbitrators are binding upon the disputants. Disputes have for the most part centred in the matter of wages. where the men have usually been successful, and have involved blacksmiths, clerks, conductors and trainmen, firemen, and enginemen, maintenance-of-way employees, telegraphers, and train dispatchers.

Soon after the Board's creation it was confronted by a case involving the 65,000 employees of the American Express Co. Arbitrators gave the men an increase of 2½ cents per hour. They had asked for 11¼ cents. On Mar. 26, 1927, an arbitration decision was handed down giving wage increases to the station employees of the Grand Central Terminal in New York. At the end of April 10,000 employees of the Southern Pacific Railway Co. received wage increases. Other station employees affected by arbitration proceedings were: 6000 men of the Southern Railway Co., 9700 men of the Illinois Central Railroad Co. The conductors and trainmen similarly submitted wage claims to arbitrators. The men on the eastern railroads received a 7½ per cent increase in wage rates. The men on the western railroads—some 70,000 workers on 55 roads—were denied any increase. The firemen and enginemen of the southeastern railways received increases of 7 per cent in the existing rates, as a result of a Board decision of June 20. The locomotive engineers of the eastern roads —some 30,000—as a result of conferences received 7½ per cent increase, effective August 1. On single railroads maintenance-of-way employees, signalmen, telegraphers, and train dispatchers, by conferences or arbitration, were also the recipients of wage increases. Of the 289 cases submitted to the United States Mediation Board, up to September 17, a settlement had been brought about in 145.

LABOR BANKS. See COÖPERATION.

LABOR CONFERENCE, INTERNATIONAL. The tenth session of the Conference of the official International Labor Organization was held at Geneva, May 25 to June 16, 1927. Forty-three countries were represented, 26 European, 10 Latin-American and four Asiatic States and three British dominions. The Turkish Republic instructed its representative to attend as an observer. The number of regular delegates was 145 of which 80 were for governments, 43 for employers and 31 for workers. In addition there were a number of substitutes and about 175 technical advisers, making the total official attendance 341. Sir Atul Chatterjee, Indian government delegate, was elected president, while delegates from Italy, Spain and Denmark were made vice presidents. As at five previous sessions, the seating of the Italian workers' delegate, Mr. Rossini, was protested, but, in spite of the unanimous opposition of the workers' delegates from all countries, was accepted by the Conference. The Conference likewise decided in favor of workers' delegates from Hungary, Czechoslovakia. Bulgaria and Cuba appointed by the governments and protested by the workers' groups as not representative of the principal labor organizations.

Action was taken on three questions (1) sickness insurance; (2) minimum wage-fixing machinery in trades in which organization of employers and workers is defective and where wages are exceptionally low, with special reference to the home-working trades, and (3) freedom of association. The first subject was the only one on which a final decision in the form of a draft convention or recommendation could be made. The other two were submitted for preliminary discussion, final action to be taken at the next session.

Two draft conventions and a recommendation concerning sickness insurance were adopted. One draft convention covers workers in industry and commerce and domestic servants (adopted by a vote of 97 to 9), and the other draft convention covers agricultural workers (adopted by a vote of 85 to nine). These draft conventions "lay down minimum conditions which must be complied with from the beginning by every system of sickness insurance." The recommendation, adopted unanimously, lays down "a number of the general principles which practice shows to be the best calculated to promote a just, effective, and appropriate organization of sickness insurance." In taking this action the Conference, after extended discussion in committee—with almost all the employers' representatives urging that each country be left free to choose between voluntary and compulsory insurance—finally adopted the principle of compulsory insurance.

The Conference reached a positive conclusion as to minimum wage-fixing machinery. It approved a questionnaire by 80 votes to 19 and placed the question on the agenda of the 1928 session of the Conference by a majority of 89 to 22.

The question of freedom of association, however, fell by the wayside. The employers' group insisted upon inserting in the proposed questionnaire to the various governments certain expressions which the workers' group protested against as tending to hamper rather than encourage the development of the trade-union movement in certain countries. As a result the remodeled committee draft of the questionnaire met with the hostility of the workers' group as a whole because it appeared "to encroach upon the inviolable rights of the working classes," and it was rejected by the Conference, 54 to 42. The insertion of the subject in the agenda of the 1928 session was also rejected by 66 votes to 28. Both the workers' and the employers' groups voted solidly against the insertion. See LEAGUE OF NATIONS.

LABOR LEGISLATION. In 1927, the legislatures of 44 States, two U. S. territories, and two insular possessions, and the Federal Congress held regular sessions. In addition, several of the States held special sessions. Notable among new laws were the Federal longshoremen's compensation act, providing compensation for half a million harbor workers suffering injuries not covered by state laws; old age pension laws in Maryland and Colorado, and a women's eight-hour law in New York. Thirty-four States and the Federal government liberalized workmen's compensation laws by more or less important amendments. Two States, Indiana and Ohio, provided for rock-dusting in coal mines, Maine and Kansas accepted the provisions of the Federal maternity act, and South Carolina the provisions of the Federal vocational rehabilitation law.

Alabama. Law requiring bonding of contractors to insure payment of wages enacted. (Session law volume for the adjourned session not available but no labor legislation reported.)

Alaska. Miners' and watchmen's lien laws amended; act authorizing coöperation of the governor with the Federal government in mine regulation continued; workmen's compensation law amended; benefits for death or injury raised about 15 per cent, making total maximum payment $9000 instead of $7800; every beneficiary to be entitled to a lien for full amount of award upon all property connected with the work performed by the employee at time of injury; benefits to non-resident alien dependents reduced.

Arizona. Hour law for female employees extended to cover all employments excepting domestic service and preservation of perishable foods; weekly hour limit reduced from 56 to 48 and weekly rest day required for women.

Arkansas. Mechanics' lien law amended; boiler inspection law amended; compensation for state employees blinded in the course of their employment provided; law enacted forbidding release of insurance carrier of an insolvent employer from payment of damages for injury to an employee.

California. Laws regarding payment of wages amended; provisions of mechanics' lien law amended; provisions of loggers' lien law extended to cover work performed with a laborer's livestock, machinery or appliances and all labor performed in connection with manufacture of timber products; time for foreclosing lien extended and procedure liberalized; law regulating advertising for employees in time of strike strengthened; 8 hour law for public works amended; commission's power to regulate hours for women and minors strengthened; law regulating private employment agencies amended; law including false representation to defraud labor in the definition of theft enacted; hiring of additional employees without advising each of them of every labor claim due and unpaid declared prima facie evidence of intent to defraud; law against misrepresentation of conditions of employment amended, penalty reduced, and violators of the law made liable to additional civil action for double damages; law requiring bonds from employers amended; compulsory school attendance law amended; law providing for establishment of public labor camps enacted; workmen's compensation law amended; agricultural employers and employees presumed to have accepted provisions of the compensation act unless notice of rejection is given; accident prevention and industrial accident fund abolished and their resources transferred to the general fund, from which $204,000 was appropriated for support of the industrial accident commission; state fund empowered to insure employers under the federal longshoremen's act and the industrial commission authorized to cooperate with the federal commission in its administration; laws providing for rehabilitation of physically handicapped children extended; department of public welfare directed to investigate old age pensions; commission to investigate retirement systems of public employees authorized; law regulating group life insurance of employees and members of labor unions enacted; department of labor and industrial relations reorganized.

Colorado. Law making wages of public employees subject to garnishment enacted; hours of labor in cement and plaster plants limited to 8 per day except at time of changing shifts; coal mine safety laws revised, limiting requirement of certified foremen, and specifying methods of ventilation of mines where more than five men are employed underground; boiler inspection law amended; workmen's compensation law amended in regard to administration of the state fund and employers' acceptance of act; old age pension law enacted, conditioned upon acceptance by each county; pensioners must be at least 70 years of age, citizens of the United States and residents of the county for fifteen years, and not possessed of property exceeding value of $3000; maximum benefit one dollar per day; act administered by county courts and financed by each county.

Connecticut. Law for bonding contractors on public work amended; law limiting night work is extended to males under 16 years of age; law penalizing fraudulent procuring of labor of public employees enacted; law regulating minors' employment certificates amended; factory inspection law strengthened; investigation and regulation of occupational diseases by board of health authorized; workmen's compensation law amended; provisions regarding occupational disease and compensable injury revised; compensation for loss of certain members increased; burial allowance raised from $100 to $200; maximum weekly payment in death cases raised from $18 to $21; right of employee with physical defect to waive his compensation rights extended to death benefits.

Delaware. Workmen's compensation law amended; state and county brought under the act if so elected by the governor and county court, respectively.

Florida. No labor legislation reported.

Georgia. No labor legislation reported.

Hawaii. Compulsory school law strengthened; workmen's compensation law amended; public employees' retirement system extended.

Idaho. Farm laborers' lien law amended; State mine inspector's salary increased; law regulating employees in eating houses amended; workmen's compensation law amended; second injury fund created; coverage and other provisions of act liberalized.

Illinois. Mechanics' lien law amended; coal mine safety law amended; workmen's compensation law amended; provisions regarding second injury fund and other procedure revised; death benefits in case of dependent minors increased; compensation for death or injury of illegally employed minors increased by 50 per cent of regular awards; compensation for loss of certain members increased; salaries of arbitrators raised and appointment of assistants authorized; appointment of arbitrators in the labor department authorized.

Indiana. Regulation of private employment agencies strengthened; coal mine safety law amended; rock dusting in mines employing more than ten men required; workmen's compensation law amended, weekly minimum and maximum wages, upon which compensation is computed raised from $10 and $24 to $16 and $30, respectively.

Iowa. Coal mine safety law amended; workmen's compensation law amended; commission to investigate old age pensions authorized.

Kansas. Law requiring vacations for certain public employees enacted; workmen's compensation law repealed and reenacted, administration of act vested in a commission instead of in the courts; employers required to insure and regulation of insurance companies provided; total maximum death benefit increased from $3800 to $4000; weekly maximum revised from $12–15 to $18; funeral benefit of $150 required in all cases; compensation for permanent partial disability raised from 50 per cent to 60 per cent of wages for the scheduled number of weeks; additional compensation for healing period authorized; employer's liability for medical care extended; coverage of act extended and other provisions liberalized; provisions of the federal maternity act accepted.

Louisiana. No labor legislation.

Maine. Compulsory school attendance law amended and educational requirement for employed minors between 14 and 16 years of age raised from sixth to eighth grade, law prohibiting certain employments to minors extended: workmen's compensation law amended; provisions of the Federal maternity act accepted.

Maryland. Law limiting hours of employment on horse railways and law forbidding employment of females in places of amusement repealed; workmen's compensation law amended; members of the national guard excluded from the act but officers of the state police, guards in penal institutions, and prisoners engaged in extra-hazardous labor for which wages or a stipulated sum are paid, brought under the act; minors illegally employed are brought under the act and provided double compensation; city authorities of Baltimore or commissioners of any county authorized to establish an old age pension system and to appropriate annually money for its maintenance; pensioners must be 65 years of age, citizens of United States and residents of city or county for fifteen years and not possessed of property valued at more than $3000; administration by courts under direction of local authorities and board of state aid and charities.

Massachusetts. Law providing annual vacations for certain public employees amended; law relating to building inspectors amended; employers' liability law amended, raising maximum amount of damages recoverable from $5000 to $10,000: workmen's compensation law amended; weekly maximum raised from $16 to $18 and total maximum for disability from $4000 to $4500. Weekly minimum raised from $7 to $9 and weekly payments to widow with more than three children increased. Coverage of act extended to employees working outside the state; an employee particularly susceptible to injury allowed to waive his rights to compensation for disability; public employees' retirement systems revised.

Michigan. Law safeguarding payment of wages by contractors amended; exemption from hour regulations for women and minors extended; regulation of private employment agencies amended; compulsory school law amended; mine and railway safety laws amended; workmen's compensation law amended; compensation is increased from 60 to 66⅔ per cent of wages, weekly maximum from $14 to $18 and maximum total payment from $7000 to $9000. Minors illegally employed brought under the act and for those between 16 and 18 years of age double compensation provided; benefits to alien non-resident dependents are reduced; investigation of claims against the state by injured employees authorized.

Minnesota. Loggers' lien law extended; exemptions to woman's hour law extended; law regulating employment of minors weakened; workmen's compensation law amended; boiler inspection law amended; State employees brought under the act.

Missouri. Salaries of certain public employees increased; law for protection of construction workers in large cities enacted; department of labor reorganized.

Montana. Mechanics' lien law amended; child labor amendment to the Federal constitution ratified; coal mine safety regulations regarding shot firing and ventilation weakened; maintenance allowance during vocational rehabilitation increased.

Nebraska. Compulsory school attendance law amended; workmen's compensation law amended.

Nevada. Law providing for collection of small debts amended; eight-hour law for underground workers strengthened; law forbidding employment of minors in certain occupations amended; coverage extended to men drafted to fight forest fires.

New Hampshire. Law providing laborers' liens against contractors on public works amended.

New Jersey. Mechanics' lien law amended; barbering on Sunday prohibited; civil service law amended; workmen's compensation law amended; public employees' retirement systems extended; law regulating group life insurance of employees and members of labor unions amended.

New Mexico. Law establishing bureau of mines enacted; workmen's compensation law amended; law safeguarding carriers of group insurance of employees enacted.

New York Law regarding collection of wages amended; mechanics' lien law amended; wages of certain public employees increased; investigation of hours and wages of employees on public works authorized; eight-hour law for women employees in factories and mercantile establishments enacted; 78 hours overtime annually allowed and, in case one day is shortened to 4½ hours, nine hours on other five days and 49½ hours per week permitted; civil service law amended; factory sanitation law strengthened; legislative investigating committee on conditions of labor continued; workmen's compensation law amended; weekly maximum in cases of total disability raised from $20 to $25; maximum payment for disability raised from $3500 to $5000 for total and $4000 for partial disability; compensation for loss of hearing of one ear, instead of only for loss of hearing of both ears, provided; law providing rehabilitation for physically handicapped children amended; committee to investigate condition of the aged poor continued; public employees' retirement systems extended; labor department administration revised.

North Carolina. Law regulating small loans secured by assignment of wages enacted; wages of certain public employees increased; hour law for minors between fourteen and sixteen years of age amended, to forbid work after 7 instead of 9 P.M. and, in case of those who have not completed the fourth grade, to limit hours to eight a day and 48 a week in occupations forbidden to minors under 14.

North Dakota. Women's hour law amended; compulsory school law amended; workmen's compensation law amended; total maximum payment in cases of death or total disability limited to $15,000.

Ohio. Commission to investigate compensation and duties of public employees authorized; mine safety law amended; substitution of rock-dusting for water sprinkling authorized; regulations regarding examination and qualifications of mine officials strengthened; regulations regarding drilling and closing of oil and gas mines much extended and strengthened; public employees retirement systems extended.

Oklahoma. Labor lien law amended; mine inspection law amended; commission to revise laws relating to coal and metal mining authorized.

Oregon. Workmen's Compensation law amended; inclusion of the state and its subdivisions under the act, made compulsory; law establishing bureau of labor statistics and factory inspection amended.

Pennsylvania. Law authorizing registry of emblems of labor organizations enacted; commission to investigate compensation and services of public employees authorized; all laws providing for indenture of minors repealed; law regulating employees in eating houses enacted; coal mine safety law amended; distance allowed between "cut throughs" extended in certain mines under special safeguards; commission to investigate barrier-pillars in the bituminous coal region authorized; workmen's compensation law amended; waiting period reduced from ten to seven days; rate of compensation raised from 60 to 65 per cent of wages; total maximum payment raised from $5000 to $6500 and weekly minimum and maximum from $6 and $12 to $7 and $15 respectively. Death benefits and burial allowance increased; public employees' retirement systems revised.

Philippines. Session law volume not yet available.

Rhode Island. Workmen's compensation law amended; payments for loss of certain members increased; maintenance allowance during period of vocational rehabilitation provided; maternity and infant welfare law amended.

South Carolina. Provisions of the federal vocational rehabilitation act accepted.

South Dakota. Law regulating garnishment of public employees' wages amended; mechanics' lien law amended; vacation of two weeks and fourteen working days' leave of absence for sickness annually provided for all State employees; workmen's compensation law amended; maximum allowance for medical and hospital charges increased.

Tennessee. Mechanics' lien law amended; committee to investigate mine safety laws authorized; law providing compensation for injury or death of employees of the state highway department provided; workmen's compensation law amended; weekly maximum raised from $12–$15 to $16; law protecting insurance carriers in group insurance of employees enacted.

Texas. Workmen's compensation law amended; waiting period made retroactive after four weeks' disability; law exempting from garnishment benefits from employers' annuity plans enacted.

Utah. Retirement system for certain public employees established.

Vermont. Workmen's compensation law amended; employees of the state department of highways brought under the act.

Virginia. Workmen's compensation law amended; law reorganizing labor department enacted.

Washington. Law exempting portion of wages from garnishment enacted; mechanics' and farm laborers' lien laws amended; law forbidding profit making employment agencies, already declared unconstitutional, repealed; law authorizing indenture of indigent minors repealed; coal mine safety; safety committees, consisting of miners and mine officials, in all mines and intensive safety education required; workmen's compensation law amended; discrimination against non-resident aliens to whom compensation is due increased; surplus fund to provide workmen with medical aid needed after expiration of employers' contracts with physicians and hospitals established; law safeguarding funds for employees' services enacted; law regulating group insurance of employees amended.

West Virginia. Law prohibiting payment of wages in scrip amended to allow such payment under certain circumstances; license fee for agencies engaged in recruiting labor to go outside the state, raised from $250 to $5000 per year; law regulating work certificates for minors amended; coal mine safety law amended; provision for rescue work extended; law forbidding lawyers to solicit business in damage suits for personal injury enacted; committee to investigate state workmen's compensation insurance fund authorized.

Wisconsin. Laws exempting portion of wages from garnishment and regulating garnishment of wages of public employees amended; law regulating assignment of wages to secure small loans enacted; one-day-of-rest-in-seven law modified; law regulating public employment agencies strengthened; railroad safety law amended; workmen's compensation law amended; maximum annual earnings upon which compensation is based raised from $1400 to $1500; compensation for prisoners and other inmates of state institutions, when permanently disabled in the course of their employment, provided; provisions regarding second injury fund and compensation for loss of members revised; appropriation for vocational rehabilitation increased; law providing special educational facilities for physically handicapped children extended

Wyoming. Coal mine safety law amended; rock-dusting in gaseous mines made obligatory; required qualifications of mine officials revised; workmen's compensation law amended.

United States. Longshoremen's compensation law enacted covering harbor workers not covered by State laws when death or injury occurs upon navigable waters, including dry docks. Masters and crews of vessels, workers on vessels under 18 tons and government employees are excluded. Percentage of wages for disability is 66⅔, weekly maximum and minimum $25 and $8, total maximum payment for injury or death, $7500. Death benefits vary with number of dependents; widow entitled to benefits until death or remarriage; occupational disease considered same as accidental injury; reasonable medical aid unlimited in time and amount; second injury fund provided; waiting period one week; administration by United States employees' compensation commission through deputies; workmen's compensation for federal employees amended, raising monthly minimum and maximum payments from $33.33 and $58.33 to $66.67 and $116.66, respectively, maximum burial allowance increased from $100 to $200. Sheppard-Towner Maternity Act extended to 1929, to be thereafter repealed; federal employees' retirement act amended; more assistants in Department of Labor authorized.

See also WORKMEN'S COMPENSATION.

LABOR LEGISLATION, AMERICAN ASSOCIATION FOR. Founded in 1906, this membership organization of socially minded economists, lawyers, journalists, labor leaders, and employers has worked along scientific lines, fearlessly attacking needless industrial evils from the general welfare viewpoint. It planned to continue its work as the American arm of the International Association for Social Progress formed by the fusion of the three international organizations for labor legislation, unemployment and social insurance. See Social Progress, International Association for.

Progress of the Association was recorded in its substantial quarterly, *American Labor Legislation Review*, the December issue of which contained a convenient annual summary and index of all new labor laws enacted in the United States. One of the most important activities of the Association during 1927, in coöperation with influential labor groups and their advisers, resulted in the passage of a Federal workmen's compensation bill to protect longshoremen. This legislation was passed by the United States Senate, June 3, 1926, and finally enacted during the closing hours of Congress, Mar. 4, 1927. Among other activities in the line of workmen's compensation, were those in favor of the Fitzgerald bill for protection of private employees in the District of Columbia, which had been favorably reported by the House District Committee, and in support of the new Missouri compensation law which became effective Jan. 9, 1927.

The campaign in which the Association had been energetic for several years for rock-dusting coal mines to prevent great coal dust explosions resulted in encouraging increase in the number of coal companies which have voluntarily adopted rock-dusting. At the beginning of the Association's special campaign five years ago, only three mines could be discovered that had employed rock-dusting. At the close of 1927, the number of coal companies (many of them operating several mines each) which were officially on record as employing this means of preventing explosions had grown to more than 240. In 1927 two additional States, Indiana and Ohio, adopted rock-dusting legislation.

Measures which the Association sponsored were adopted in several States, establishing old age pensions, vocational rehabilitation, one day of rest in seven, and measures for the mitigation of unemployment. The twenty-first annual meeting was in Washington, Dec. 27–30, 1927, several sessions being held jointly with the American Statistical and American Economic Associations. The chief subjects of discussion were the administration of protective standards, use of injunctions in labor disputes, social cost of illness and old age, newer developments in social insurance, labor legislation and the business mind, industrial efficiency and social welfare, the industrial revolution in the new south, new developments in workmen's compensation and accident prevention in the bituminous coal industry. Among the speakers were: Leifur Magnusson, Mary Van Kleeck, John A. Lapp, John A. Fitch, Joseph P. Chamberlain, E. E. Witte, Charles H. Verrill, Walter Gordon Merritt, Charles M. Joseph, John P. Frey, Michael M. Davis, Walton H. Hamilton, Glenn Bowers, Ernest G. Draper, Paul H. Douglas, Sidney Hillman, Otto T. Mallery, Irving Fisher and Mary Anderson. The president in 1927 was Sam A. Lewisohn; the secretary, John B. Andrews, with headquarters at 131 East 23rd Street, New York City. See Labor Legislation.

LABRADOR. A large peninsula in British North America, forming the easternmost part of the North American continent; lying between the Atlantic Ocean and Hudson Bay. It includes the northeast portion of the province of Quebec in Canada and a small strip along the northeast coast dependent upon Newfoundland. The term Labrador is also applied to the latter portion, which has an area of 120,000 square miles; with a population in 1924 of 3874. (See Newfoundland for a discussion of the settlement of the boundary question.)

LABUAN. A small island off the northeastern coast of Borneo, included in the settlement of Singapore after Jan. 1, 1907. Area, 30 square miles; population, in 1925, 5694, mostly Malays from Borneo. Capital, Victoria, with a population of 1500. Revenue, 1925, $132,137, expenditure, $135,028; trade, $8,250,000.

LACROSSE. This sport retained its hold on the American college world during 1927 and it was noticeable that several new clubs devoted to the game were organized in various parts of the United States and Canada. First place in the annual ranking of the United States Intercollegiate Association went to Johns Hopkins University. The United States Naval Academy ranked second and Yale third. At the annual meeting of the association it was decided to send a team to the Olympic Games at Amsterdam, but it was not definitely determined just how the members of this team should be selected.

LAFAYETTE COLLEGE. An institution for the higher education of men at Easton, Pa.; founded in 1826. In the autumn of 1927 the enrollment was 1088. The faculty numbered 90. The productive funds amounted to $2,750,000, and the income for the year to $450,000. The number of volumes in the library was 65,000. William Mather Lewis, A.M., LL.D., was installed as president on Oct. 20, 1927, to fill the vacancy caused by the resignation of President John H. MacCracken on October 1, 1926. In addition to $163,750 received as gifts during the year 1926–27, a gift of $500,000 from John Markle, for a mining engineering building and its endowment, was announced on the occasion of the inauguration of Dr. Lewis. Easton Hall, a dormitory for freshmen, the gift of the citizens of Easton, was completed at a cost of $185,000.

LAFFAN, The Rev. Robert Stuart de Courcy. British clergyman and educator, died at London, January 16. He was born Jan. 18, 1853, and was educated at Merton College, Oxford, from which he received an M.A. degree in 1884. He was ordained deacon in 1882 and a priest in 1883. He was headmaster of King Edward VI's School, Stratford-on-Avon, from 1884 to 1895, and was then made principal of Cheltenham College, in which position he remained until 1899, when he became rector of St. Stephen, Walbrook, with St. Benet Sherehog. He was serving there at the time of his death. He was keenly interested in sports and had been a member of the International Olympic Committee since 1899 and of the British Olympic Council since 1905.

LANDS, Public. The Commissioner of the U. S. General Land Office reported that for the fiscal year ending June 30, 1927, a total of 50,298 original homestead and similar entries embracing an area of 3,594,838 acres was allowed, as compared with 44,524 entries for 3,243,446 acres in 1926, while 13,952 homestead entries were patented during the year, title passing to entrymen for 4,456,000 acres. The total receipts for the year of $9,210,697.25 were distributed as follows: Reclamation fund $4,338,341.72; to the public land States, $2,550,200.24; general fund of the United States, $1,692,460.63; and to the various Indian tribes $620,694.66.

As a result of improved conditions in the mining industry, mineral entries totaling 1,582, or an increase of 252 over 1926, were received; two applications for the establishment of State irrigation districts, embracing 36,257.77 acres were received by the General Land Office, and 69 withdrawals under the Federal water power act were made during 1927 for an area of 71,751 acres, of which 54,103 acres were situated in national forests; 42 orders of reclamation restoration involved 50,642 acres, while 77,802 acres were withdrawn; 1440 acres were withdrawn under the act of June 14, 1926, to be utilized for recreational purposes by States, counties and cities; 1,909,688 acres were placed in a state of reservation and 2,493,806 acres released either by Executive or departmental orders pursuant to various applicable acts; and the sum of $50,314.94, as against $13,100.81 for the previous year, was collected in connection with the use and occupancy of public lands for hydroelectric power development.

The total expenditures for the conduct of the business of the General Land office and its field activities amounted to $2,284,020.33, or less than one-fourth of the receipts; this amount being $86,000 less than the expenditures for 1926. The Washington office reduced its force considerably during the year and reduction in the number of district land offices from 42 to 29 further reduced the field personnel. The Southern inspection division, with headquarters at Jackson, Miss., was abolished and the work taken over by the Washington office; the Cheyenne inspection division was likewise abolished and the work divided between the Denver, Col., and Helena, Mont., offices. The sum of $430,000 was available for the inspection service, composed of 74 workers, which was instrumental in returning 185,937.77 acres to the public domain, representing fraudulent entries. The field force investigated and reported 16,320 cases, of which 3,666 were adverse to entrymen and 12,654 favorable; 65 civil suits brought through the Department of Justice upon the recommendation of the field service were won and 13 lost; these cases restoring 7,218.51 acres to the public domain netted $44,443.36. Fifty-nine indictments were returned for offenses under public land laws, and 20 of the criminal cases tried resulted in convictions, with prison sentences in five cases.

For the work of the cadastral engineering service, with headquarters at Denver, Colo., $888,518.75 was available, and an aggregate of 5,160,072 acres was included in surveys or resurveys. Among the miscellaneous surveys made during the year were 38 field investigations of erroneous or fictitious surveys in 7 Western States and Florida; surveys of 10 townsites in Alaska, Idaho, New Mexico, Oregon, and Florida; 45 islands in 12 States; 31 lighthouse reservations; 23 mineral segregations; 4 military reservation boundaries in Alaska, Idaho, Washington, and Florida: 3 Spanish-grant boundaries; and an Indian village in Alaska.

The programme of extending resurveys over oil-shale areas in western Colorado was continued, while surveys on a large scale were carried on in Utah along the Colorado, San Juan and Green Rivers, on lands valuable for oil and oil-shale. Numerous surveys were made in the various National parks, in coal and oil areas, and within the boundaries of Indian reservations. Surveys and resurveys under the rectangular system, based on the requirements of agricultural settlement, industrial expansion, administrative and special purposes, amounted to 17,877.7 miles and averaged $21.46 per mile. The map of the United States was revised for 1927 to show the extent of the surveys of public lands, national parks, reservations, county seat locations, lines of railroads, towns, cities, private-land grants, irrigation projects, the acquisition of public lands, lighthouse and other stations. In addition State maps of New Mexico and Michigan were being printed and a map of California was being prepared.

A revival in the stock industry during the year showed the importance of protecting and improving public grazing lands, by repealing stock-raising acts and desert-land laws and modifying timber and stone laws to eliminate the provision authorizing the purchase of lands chiefly valuable for timber. The act of Mar. 4, 1927, enabled the Secretary of the Interior to establish grazing districts upon any public lands in Alaska, except on certain reservations, and provided for leases for definite areas over a period of twenty years, in order to stimulate the raising of cattle, sheep, goats and reindeer in Alaska. A total of 261,031.17 acres was conveyed to the States under school grants and indemnities, and on Jan. 25, 1927, Congress extended the school grant to include unappropriated mineral school sections. Tribal Indian allotments aggregating 384,310.40 acres were received and disposed of; patents were issued to Indians, under the homestead law, for 217,248.20 acres; and 1400 patents conveying title to Indians or their heirs of 174,048.79 acres were issued. In addition to the areas set aside for public purposes, such as national parks, water-power, stock-driveway withdrawals and other government reservations, there remain 193,737,588 acres in the public domain, of which 139,886,998 are surveyed, and the government retains mineral rights on more than 17,500,000 acres patented under the stock raising homestead law, and reserves coal, oil and other mineral deposits on more than 12,500,000 acres.

LANDSBERG, Max. American rabbi, died at Rochester, N. Y., December 9. He was born at Berlin, Feb. 26, 1845, and was educated at the Universities of Göttingen and Breslau, the Jewish Theological Seminary at Breslau, and the University of Halle. He became a rabbi in 1870. Going to America in 1871, he became a minister at the Berith Kodesh Congregation, Rochester, N. Y., and remained there until 1915, when he was made rabbi emeritus. He was president of the New York Association of Correction and Charities in 1911, and served as governor of the Hebrew Union College at Cincinnati and as a trustee of the Reynolds Library and Rochester General Hospital. He was active in civic and charitable organizations at Rochester and throughout the country. He wrote a *Ritual for Jewish Worship* (1884) (3d. ed., 1910).

LANSDOWNE, Henry Charles Keith Petty-Fitzmaurice, Fifth Marquis of. British statesman, died June 3 at Clonmel, Ireland. He was born at Lansdowne House, London. Jan. 14.

1845, the eldest son of the fourth marquis. He was educated at Eton and at Balliol College, Oxford, and succeeded at the age of 21 to the numerous family titles. He joined the Liberal Party and was appointed a Lord of the Treasury by Gladstone in 1868, continuing in his political career as parliamentary under secretary in the War Office from 1872 to 1874, when the Liberal government fell. He became under secretary for India in 1880 when Gladstone returned to power, but resigned within a short time, disapproving of the government's compensation for disturbance (Ireland) bill. In 1883 he was appointed Governor-General of Canada, a position he held for five years, during which time the rebellion of Northwest Indians under Riel occurred. He handled this situation with diplomacy and effected a lasting settlement with the Indians. In 1888 Lord Lansdowne accepted the viceroyalty of India, succeeding Lord Dufferin. Returning to England in 1893, he became Secretary of State for War in 1895 in Lord Salisbury's cabinet, and in 1900 was appointed foreign secretary. In this latter position he brought about the Japanese alliance and also the entente cordiale with France, the latter in pursuance of his policy of establishing a closer understanding with France. He was the leader of the Conservative Opposition or Unionist party in the House of Lords from 1905 to 1915 and opposed the Irish home rule and Welsh disestablishment bills and was responsible for their defeat in the House of Lords. In 1915 he was invited to join the coalition government of Mr. Asquith, in which he became minister without portfolio, retiring from the ministry on the resignation of Mr. Asquith in 1916. In 1917 he wrote the "Lansdowne Letter," which was responsible for much controversy, although it merely advocated an early and definite statement of peace terms by the Allies. At the close of the War he came forward with several plans for a moderate settlement of peace, and some of his proposals were included in the treaty of Versailles.

LAOS. See French Indo-China.

LATOUR, Francis Sanchez. Minister from Guatemala to the United States, died at Washington, D. C., November 8. He was born in Quezaltenango, Aug. 21, 1876, and was educated in France and England, serving later as an officer in the British navy. In 1908 he was sent by Guatemala to Washington on a special mission connected with the treaty of the preceding year, and in 1910 was appointed chargé d'affaires. From this time on he became identified largely with Pan-American affairs, and after the resignation of the Orellana government in 1922 was appointed minister to the United States. At Washington he enjoyed the warm friendship of the officials of the government to which he was accredited and of his fellow diplomats. He was vice chairman of the governing board of the Pan-American Union. He was an author and musician.

LATTER-DAY SAINTS, Church of Jesus Christ of. A religious body commonly known as the Mormon Church, existing chiefly in the United States. It was organized Apr. 6, 1830, at Fayette, N. Y., by Joseph Smith, whom his followers credit with having discovered, through a Divine revelation, a set of plates, buried in a hill, from which, by a special power received from God, he translated the text of the Book of Mormon. the special sacred book of the Church. The Mormon articles of faith include belief in God, Jesus Christ, and the Holy Ghost, the punishment of men for their own sins, the atonement, divine authority, baptism, laying on of hands, prophecy, salvation for the dead, the Bible "as far as it is translated correctly," the common virtues, and obedience to constituted authorities. The membership of the church is chiefly in the Mountain States, owing to the early migrations of Mormons and their final settlement in Utah.

The administrative divisions of the church are known as the stake, ward, branch, and mission. A stake comprises wards and branches, and is directed by a presidency of three. A ward is frequently a part of a city, and is directed by a bishop and two counselors. The branch, similar to the ward, is directed by an elder. In 1927 the church consisted of 99 stakes, 915 wards and 77 independent branches. The estimated membership in 1927 was 624,000. Eleven missions in America had a membership of approximately 82,000; those in Europe, 27,000, and in the Pacific Islands, 14,000 members. The chief authorities of the church were: Heber J. Grant, president; Anthony W. Ivins, first counselor; Charles W. Nibley, second counselor; Rudger Clawson, president of the Quorum of the Twelve Apostles; and Reed Smoot, George Albert Smith, George F. Richards, Orson F. Whitney, David O. McKay, Joseph Fielding Smith, James E. Talmage, Stephen L. Richards, Richard R. Lyman, Melvin J. Ballard, and John A. Widtsoe, apostles. Hyrum G. Smith was presiding patriarch; Brigham H. Roberts, J. Golden Kimball, Rulon S. Wells, Joseph W. McMurrin, Charles H. Hart, Levi Edgar Young, Rey L. Pratt, Seven Presidents of Seventy; Sylvester Q. Cannon, presiding bishop; David A. Smith, first counselor; and John Wells, second counselor.

The church authorities reported 2260 missionaries at work in various countries, 850 being outside the United States. The Melchizedek Priesthood, a senior order, had 70,925 members, and the Aaronic Priesthood, a junior order, 69,808 members. The Church maintains seven temples which are devoted to sacred ordinances for the living and the dead, such as baptisms, endowments and marriages. The Church maintains Brigham Young University (q.v.) at Provo, Utah, six junior colleges, one high school and 70 seminaries, small schools connected with high schools and providing special religious instruction. The auxiliary bodies include a women's relief society numbering about 61,627, which cares for the poor and sick, Sunday schools with 257,717 pupils and 26,250 officers and teachers. The two Mutual Improvement Associations, composed of young persons, had an enrollment of 104,588. The primary association had 103,318 children under 14. Religion Classes had an enrollment of 61,131. The Church holds general conferences in the first week of April and of October of each year, at Salt Lake City, Utah, at which the work of the general authorities is reviewed.

LATTER-DAY SAINTS, Reorganized Church of Jesus Christ of. After the death of Joseph Smith in 1844 several factions developed among the Latter-Day Saints. In 1852, in Wisconsin, some of these scattered congregations effected a partial reorganization, which was later completed under the name of the "Reorganized Church of Jesus Christ of Latter-Day Saints," and which claims to be the true continuation of that established by Joseph Smith. This claim has been successfully sustained in the Supreme Court. In 1860 these organizations were joined by Joseph Smith, the son of the prophet, who became presiding officer, a position which he held until his death in 1914, when his son, Frederick M. Smith, succeeded him. The Reorganized Church holds the same faith and religious practice which Smith established, but rejects as false and inconsistent with Smith's revelation the doctrine of polygamy. The membership as reported in 1927 was 100,574, including members throughout the United States and in Canada, Great Britain, Australia, and Germany, Isle of Pines, Holland, Switzerland, Norway, Sweden, Palestine, South Sea Islands, Hawaii and New Zealand. The organization comprises 692 churches, 6680 ministers, 751 Sunday schools, and 41,082 scholars. It maintains Graceland College at Lamoni, Ia., the Institute of Arts and Sciences, at Independence, Mo., and several homes for orphans and the aged, as well as a powerful radio broadcasting station, at its headquarters in Independence, Mo. Its official periodical, the *Saints' Herald*, is issued weekly.

LATVIA. A Baltic state formed after the war from territories of the old Russian Empire. Capital, Riga.

AREA AND POPULATION. The total area is approximately 24,400 square miles, made up as follows: The former province of Courland (about 10,435 square miles); the four southern districts of the province of Livonia (about 7815 square miles); and three districts of the province of Vitebsk (5292 square miles). According to the census of 1925, the population was 1,844,805, of whom 1,779,593 were Latvian citizens and 65,212 foreigners. The birth rate during 1924 was 22.32 per thousand and the death rate 15.39 per thousand. The chief cities with their populations at the census of 1925 are: Riga, 337,700; Libau, 60,762; Dvinsk, 40,640; and Mitau, 28,321.

EDUCATION. According to Latvian law, every national minority has a right to its own school, which may employ its own language in instruction, and the state contributes to such institutions in proportion to the percentage of total inhabitants. During the year 1925–26 there were 1891 elementary schools in Latvia, with 173,099 pupils and 7227 teachers, while 20,000 children between the ages of seven and 14 could not find accommodation at schools. In the 121 secondary schools there were 2290 teachers and 22,071 pupils. After the University of Dorpat became an Estonian institution, the polytechnic school at Riga became the Latvian University (1919). In 1925–26 there were 309 professors and 6314 students in the university.

PRODUCTION. Latvia is mainly an agricultural country, but an increasing number of people are passing from agricultural to industrial life. In 1925 the principal crops were rye, 666,250 acres, 315,090 metric tons; barley, 441,500 acres, 177,850 metric tons; oats, 824,000 acres, 303,850 metric tons; potatoes, 197,500 acres, 750,460 metric tons; flax 195,250 acres, 30,020 metric tons (27,910 metric tons linseed). The state and private timber lands of Latvia produced in 1924–25, 91,000,000 cubic feet of timber and 51,000,000 cubic feet of firewood. Livestock in 1925 numbered: Horses, 351,900; cattle, 915,800; sheep, 1,180,600; and pigs, 467,100. At the beginning of 1926 there were 2839 industrial enterprises in Latvia employing 49,900 hands. The largest industry is the manufacture of matches. Latvia has no mineral resources.

COMMERCE. No later statistics for commerce were available than those given in the preceding YEAR BOOK when the exports in 1925 totaled 179,598,010 lats and the imports 280,324,401 lats.

FINANCE. The budget bill for 1926–27 called for ordinary revenues of 148,500,000 lats and extraordinary revenues of 12,000,000 lats; ordinary expenditure of 109,134,005 lats and extraordinary expenditure of 51,352,283 lats. The budgets for 1925–26 and 1926–27 were the first to be drafted in accordance with the State budget law that went into effect July 1, 1924, and the proposed budget for 1926–27 was the first to total below the preceding year's estimates as voted by parliament instead of greatly exceeding them as heretofore. The national debt of Latvia on Apr. 1, 1926, was as follows: To the United States $5,775,000; to Great Britain, £2,262,500. The internal debt amounted to 479,000 lats.

COMMUNICATIONS. In 1925, 4117 vessels of 1,443,682 tons entered and 4106 of 1,445,417 tons cleared from the ports of Latvia. A review of the Latvian railways for the fiscal year ended Mar. 31, 1927, indicated that there were 2900 kilometers of lines. The State Railways had 1484 kilometers of Russian gauge (1.524 meters), 460 kilometers of standard gauge (1.435 meters), and 794 kilometers of narrow gauge and field gauge (750 and 600 millimeters); while of the privately owned lines, one is of 48.8 kilometers (1 meter gauge), connecting the port of Liban with the town of Aixput, and the other is 113.2 kilometers (750 millimeter gauge), connecting the small port of Ainazi with the town of Smiltena. Construction work on the new broad-gauge line of 169 kilometers between Libau and Gluda was progressing satisfactorily. This line when completed, will form a new and important link between the hinterland of Soviet Russia and the Baltic Sea and will do much to utilize the excellent port facilities of Libau, which are now little used owing to the closing of the freight traffic across the Lithuania boundary on the Romney-Minsk-Vilna-Libau line.

The operating statistics during the fiscal year ended March 31, 1926, as compared with the estimated expenses appearing in the 1927 budget are shown in the following table:

OPERATING STATISTICS OF LATVIAN RAILWAYS
[*In lats* [a]]

Item	*1925–26*	*Budget estimates, 1926–27*	*Per cent increase or decrease*
Passenger traffic ..	14,013,272	14,320,018	+ 2
Baggage	1,184,948	1,154,040	− 3
Freight traffic	17,790,930	19,930,524	+12
Miscellaneous	1,788,945	2,366,433	+32
Total	34,778,095	37,771,010	+ 9

[a] The lat = $0.193.

GOVERNMENT. Under the constitution adopted by the constituent assembly, Feb. 15, 1922, executive power is vested in a president, elected by parliament for three years; and legislative power in the Saeima, or parliament, comprising 100 members elected for three years, by universal suffrage (men and women), equal, direct, and secret ballot, on the basis of proportional representation. The ministries are those of Interior, Foreign Affairs, Finance, War, Public Works, Education, Agriculture, Justice, Communications, and State Control. President, in 1927, J. Chakste, who died Mar. 14, 1927; Prime Minister, M. Skujenieks (appointed December, 1926).

History. The year passed comparatively quietly for this tiny republic. In the first month of the year an agreement between Estonia and Latvia was reached whereby the two states would coöperate along the lines of economic legislation, including such items as customs, excise, direct taxation, monopolies, banking laws, and measures of a like nature. Relations were also friendly with Moscow and the two governments made a sincere effort to gain peace between themselves by adopting a policy of non-aggression. A severe blow to Latvia occurred on March 14 when the first and only president the republic had, Jan Chakste (q.v.), died. He was elected by the first Latvian parliament in 1922 and was reëlected in November, 1925. His successor was Gustav M. Zemgals, the candidate of the Democratic Central party, who was elected on April 8 by a vote of 73 to 72.

Latvia was stirred in the fall by the discovery of a revolutionary plot, the leader of which, a man by the name of Behrsin, was one of the chief movers of the Bolshevik reign of terror in 1919. Many passports and a large sum of money were found in Behrsin's possession. The Latvian government reported that the passports were stolen or forged, but that the money was sent from Moscow with definite instructions as to how it was to be spent. According to the press nothing further was disclosed concerning the plot before the end of the year.

LAUSANNE CONFERENCE. See World Conference on Faith and Order.

LAW, International. See International Law.

LAWN TENNIS. See Tennis.

LEAD. The output of primary domestic desilverized lead in the United States in 1927 was about 375,000 tons; of soft lead about 240,000 tons, and of desilverized soft lead about 61,000 tons, making a total output from domestic ores of about 676,000 tons of refined lead, according to statistics compiled by the U. S. Bureau of Mines. Corresponding figures in 1926 were 366,413 tons of desilverized lead, 258,565 tons of soft lead, and 55,707 tons of desilverized soft lead, making a total of 680,685 tons. The output of lead smelted and refined from foreign ore and bullion was about 131,000 tons, as compared with 118,256 tons in 1926. The total primary lead smelted or refined in the United States in 1927 was thus about 807,000 tons, as compared with a total of 798,941 tons in 1926—a gain of about 1 per cent. The output of antimonial lead in 1927 was about 16,000 tons, as compared with 22,524 tons in 1926.

The imports of refined pig lead for eleven months amounted to 2,442 tons, of which 1,764 tons came from Mexico. The base bullion imported during the same period contained 109,848 tons of lead, almost wholly from Mexico. The exports of lead of foreign origin amounted to 111,835 tons, as compared with 67,660 tons exported in the entire year 1926. Exports of lead of domestic origin amounted to 2,233 tons, as compared with 4,276 tons exported in 1926. Exclusive of stocks of lead at smelters and refineries and estimating the amount of lead exported with benefit of drawback, for which figures are not available, it is calculated that the new supply of lead made available for consumption in 1927 was about 685,000 tons, as compared with 717,653 tons in 1926.

According to figures published by the American Metal Market, the average quoted price of lead for prompt delivery at New York for the year was 6.78 cents a pound, as compared with an average selling price of 8.0 cents in 1926. The quotation at the beginning of the year was 7.80 cents and in the closing days of the year it was 6.5 cents.

The following were the average monthly prices on lead for prompt delivery at New York, in cents a pound:

January	7.8	July	6.4
February	7.5	August	6.7
March	7.6	September	6.3
April	7.1	October	6.3
May	6.6	November	6.3
June	6.4	December	6.5

The recoverable lead contained in ore mined in the United States in 1927 was about 664,300 short tons, as compared with an output of 682,381 tons in 1926, a decrease of nearly 3 per cent, according to the Bureau of Mines' figures. The output of soft lead by mines of the Mississippi Valley and a small output from the Eastern States amounted to about 288,000 tons, and that of argentiferous lead by mines of the Western States amounted to about 376,000 tons. Corresponding figures for 1926 were 310,706 tons from the Mississippi Valley and the Eastern States, and 370,897 tons from the Western States. The largest output came from the southeastern Missouri district and amounted to about 202,300 tons, as compared with 203,062 tons in 1926. The output of Utah came next and amounted to about 148,950 tons, compared with 147,635 tons in 1926. Idaho ranked third with an output of about 146,800 tons, compared with 136,490 tons in 1926, and made the only important increase in production in 1927. In the Joplin district there was a decrease from 102,117 tons to 81,800 tons, 20 per cent.

The price at Joplin of 80 per cent lead concentrates was $97.50 a ton at the beginning of the year and the down trend of prices which began in September, 1926, carried the price to $90 a ton in the last week in January, 1927, where it remained for four weeks. An advance of $10 a ton was made in the next two weeks, but by the last week in March another downward movement was started which carried prices to $75 a ton early in July. The price recovered to $87.50 in August, dropped to $80 during the second week in September, where it remained for 12 weeks, then advanced to $85 which held during all of December. See Metallurgy for developments in handling of flotation concentrates and other processes.

In addition to the United States, Canada with an estimated output of 151,000 short tons and Mexico with 267,000 short tons, brought up the total for North America to 1,096,000 short tons. In addition, Australia with an estimated output of 185,000 tons, Spain and Tunis with 168,000 tons, Germany and Silesia with 121,000 short tons, Burma with 73,000 tons, and other countries with a total of 185,000 tons brought the world production in 1927 to 1,828,000 short tons according to estimates made in the Annual Review of the *Engineering and Mining Journal.* This figure corresponds with 1,758,000 tons, the world's total in 1926. There was increased production during the year due to improved metallurgical processes, notably selective flotation, and the industry as a whole was in a fair condition, with an increased demand. Attention was called to the progressive exhaustion of many of the world's oldest and greatest mines and the necessity of considering new deposits of which those immediately available seemed to be in Newfoundland, the Australian Mount Isa and certain sources in South America. See METALLURGY.

MINE PRODUCTION OF LEAD IN THE UNITED STATES IN 1926 AND 1927, IN TERMS OF THE RECOVERED AND RECOVERABLE METAL CONTENT, IN SHORT TONS. (1927) ESTIMATED

	Lead	
District	*1926*	*1927*
Eastern States	3,250	2,100
Central States:		
Tri-State district	102,117	81,800
Southeastern Missouri	203,062	202,300
Upper Mississippi Valley	1,819	1,400
Michigan	....	....
Other	458	400
	307,456	285,900
Western States:		
Arizona	11,629	9,910
California	4,047	1,270
Colorado	33,000	33,780
Idaho	136,490	146,800
Montana	21,153	18,250
Nevada	11,184	8,410
New Mexico	8,380	7,750
Oregon	6	3
Texas	....	250
Utah	147,635	148,950
Washington	2,273	610
	370,897	375,983
Alaska [a]	778	800
Total	682,381	664,283

[a] Figures obtained from the Geological Survey, Department of the Interior.

LEAF, WALTER. British banker, scholar, linguist and author, died at Torquay, England, March 8. He was born at Norwood, in 1852, and was educated at Harrow and at Trinity College, Cambridge. He won high honors in classic scholarship and intended to study for the bar, but the illness of his father brought him into the family firm of Leaf, Sons & Co., in 1877. He was chairman of the company, 1888–92, but in 1891 he had been elected a director of the Westminster Bank, and he devoted the rest of his life to banking and to scholarship. He was not only an authority on national British and international finance, but was also a brilliant Greek scholar and writer on ancient Greek history and literature. His translations of Homer are classic. He was known also as an Alpinist and had to his credit several adventurous ascents. He was president of the Institute of Bankers, 1919–21, of the Classical Association, 1921, and of the International Chamber of Commerce, 1925–26. He wrote: (With J. H. Pratt) *The Story of Achilles* (1880); *A Modern Priestess of Isis* (translated from the Russian) (1894); *Versions from Hafiz, an Essay in Persian Metre* (1898); *Troy, a Study in Homeric Geography* (1912); *Homer and History* (1915); *Little Poems from the Greek* (1922), and *Strabo on the Troad* (1923). He also wrote and edited, under his own name and with the collaboration of Andrew Lang and E. Myers, three books on Homer and the Iliad, and he contributed numerous papers to the *Journal of Philology, Hellenic Studies, The Geographic Journal,* and other learned periodicals.

LEAGUE OF NATIONS. Herr Gustav Stresemann, Germany's foreign minister, presided over the 44th session of the Council of the League of Nations (March 7–12) and to him must go the major credit for the success of the meeting. Three irritating differences between Germany and her neighbors were either solved or made easier of final settlement. As to the Saar, Herr Stresemann yielded what seemed to be his legal right under the Treaty of Versailles to demand the elimination altogether of French troops, and agreed, in view of a promise of the French to withdraw their occupying troops within three months, that an inter-Ally railway guard of eight hundred men might be continued, but under the direct control of the Saar Government Commission.

In regard to German schools in Polish Upper Silesia, Herr Stresemann agreed to yield the extreme German contention and to accept a settlement that provided that parents in the part of Silesia formerly belonging to Germany were to have the absolute right to determine whether their children go to the German schools, provided only that children who speak only Polish must attend Polish schools.

As to German-Polish commercial relations, this difficult subject that had repeatedly strained the relations between Warsaw and Berlin was not on the agenda of the Council, but Briand and Chamberlain used their good offices to bring Stresemann and the Polish Foreign Minister Zaleski together, with the result that they agreed on a basis for the reopening of negotiations for a commercial treaty.

Herr Stresemann was severely criticized at home for his concessions on these points, particularly because he did not seem to have secured from France any promise to expedite the evacuation of the Rhineland. In defense of his policy of conciliation, Stresemann at the conclusion of the Council meeting declared that he was acting more as a "League Man" than as a German and that as Germany's first President of the Council he desired to avoid creating a situation which could not be settled by unanimous vote. The German Foreign Minister's work at Geneva was, however, unanimously approved by the Marx Cabinet on March 15, at a special meeting presided over by President von Hindenburg himself.

Another interesting item of the session was the agreement by Persia to accept with reservations the recommendations contained in the report of the League Commission which in the previous year, under the chairmanship of Frederic A. Delano of Washington, studied the opium problem in Persia. Through its Director of Internal Revenue, Colonel D. W. MacCormack, an American, the Persian government agreed that after a three-year preparatory period it would reduce its opium production by 10 per cent a year for three years. Colonel MacCormack insisted, however, that further reduction would have to be considered anew at the end of the trial period because of Persia's financial needs.

In addition to the sessions of the Council there were nine different League meetings during March. The most important referred to disarmament. The preparatory commission for the Disarmament Conference meeting on March 21 had before it the work done by its various technical sub-commissions since June. The question of the international supervision of the private manufacture of arms was also to be dealt with, since a special commission on which the United States was represented met on March 14 to draw up a draft international convention for the conference which was to be summoned by the League in the autumn. In addition to the League's financial committee it studied the possibility of establishing a common scheme of financial assistance to a state which had been attacked, and to consider the legal position which would result from enforcing in peace-time the measures of economic pressure indicated in Article 16 of the Covenant, particularly by a maritime blockade. Besides dealing with security problems, the financial committee advised the Council on the progress of the settlement of Greek and Bulgarian refugees, and various matters relating to the balance of the Austrian and Hungarian reconstruction loans.

On March 22, a committee of legal exports met in Geneva to prepare a draft international agreement ensuring the execution of arbitral rewards rendered abroad. This was intended to reinforce the League's protocol on Arbitration Clauses in Commercial Contracts in force since July, 1924. The same day the Committee for the Progressive Codification of International Law began its session. It examined the replies received from twenty-six governments, including the United States, on questions such as the exploitation of the products of the sea, which the committee considers ripe for settlement by international action. On March 23, a sub-committee of educational experts examined the observations of a number of private organizations on the sub-committee's report on instructing young people in the aims and objects of the League.

It was an inspiring moment in June when the leaders began gathering for the forty-fifth Council meeting. It was called for Monday, June 13. Sunday, the day before, saw a succession of the leading statesmen of Europe passing from various points in Europe to Geneva. Five European countries were represented by their Foreign Ministers. One of the Council's first acts was to approve the action of Sir Eric Drummond, secretary general, in extending the facilities of the League to the three-power naval limitation conference which met in Geneva the same month.

A call for an international conference at The Hague for the codification of international law was made by the Netherlands. One of the main reasons for holding the conference in Holland was the desire to assure the participation of the United States and other non-members of the League, while another was the important place held by The Hague in framing international legal codes, declared a report presented by Foreign Minister Zaleski, of Poland, which the Council adopted.

One of the features of this session of the Council was a vehement denial by Sir Austen Chamberlain that he had any ulterior motive in advancing his recent proposal that the League Council meet three times instead of four times yearly. Geneva newspapers criticized the suggestion, declaring that it cloaked a desire on the part of the European statesmen to settle their political problems secretly outside of Geneva. Sir Austen asserted he wished to do nothing to impair the authority and usefulness of the League, but added it was difficult for the various Foreign Ministers to come to Geneva so often. He expressed the opinion that the best interests of the League would be served by reducing the number of meetings, thus assuring the presence of the various Foreign Ministers. "Moreover," he added, "as the world settles down we can confidently hope that there will be fewer questions for submission to the Council."

Observers of European affairs, in the opinion of the Foreign Policy Association, had come to regard the temper of the meetings of the Council as the barometer of political and economic conditions prevailing in Europe. The 45th meeting of the Council reflected the agitation caused by the Anglo-Russian break, the assassination of the Soviet Ambassador in Warsaw, the crisis in Jugo-Slav-Albanian relations and the unfavorable report of Marshal Foch regarding the disarmament of Germany. Discussion of these pressing questions was carried on behind closed doors and the formal agenda of the Council meeting were pushed into the background.

It was reported that Sir Austen made efforts to obtain Germany's support in the following measures:

1) A joint note of protest by the Powers against Communist propaganda.

2) Permission for the passage of troops through Germany under Article 16 of the League Covenant in case of need for the protection of Poland.

This proposal for a joint note was shelved at the request of M. Zaleski, the Polish Foreign Minister, who pointed out the great danger of stirring up the Soviets by announcing a common front against Russia. The second point was referred by Dr. Stresemann to Berlin.

Germany's attitude was the crux of the crisis. Germany was bound by treaty with Russia to come to an agreement on all questions of political and economic character affecting the two countries and to refrain from joining any economic or financial blockade against the Soviets. In a letter appended to the treaty, Dr. Stresemann undertook to oppose any efforts directed exclusively against the U. S. S. R. that might evolve within the framework of the League. On the other hand, by the Locarno treaties and membership in the League, Germany is closely tied to both France and Britain. Finding herself bound to both sides in the diplomatic crisis following the Anglo-Russian break, Germany expressed her neutrality. It was believed by some observers, however, that Dr. Stresemann was holding out for special compensation to make it worth while to bring German pressure to bear upon the Soviets.

Mussolini's veto upon any discussion of the Treaty of Tirana at the Council blocked a consideration of the Balkan crisis. It was anticipated at first that the Council would make the break in Jugo-Slav-Albanian relations the occasion for a thorough examination of the situation created by the Treaty of Tirana, generally acknowledged to be the underlying cause of Jugo-Slav-Albanian misunderstanding. The political situation in the Balkans was eased, however, by Sir Austen Chamberlain, who, it was reported, requested Premier Mussolini to prevent any further irritations from developing at present in the Adriatic.

Illness necessitated M. Briand's sudden departure for Paris, thus breaking off the private discussions before any final measures were agreed upon. Marshal Foch's report was considered, criticizing Germany concerning the destruction of the eastern fortifications.

During the month of June the activities of the League included the following meetings: Conference of Infant Mortality Experts, Montevideo; Drafting Committee of the Committee of Experts on National Defense Budgets, Geneva; Financial Committee, Geneva; Twelfth Ordinary Session of the Permanent Court of International Justice, The Hague; Committee of Experts on National Defense Budgets, Geneva; Permanent Mandates Commission, Geneva; Mixed Committee of Experts on the Counterfeiting of Currency, Geneva; Sub-Committee for Buoyage in the Cardinal System, Stockholm-Helsingfors.

The forty-sixth session of the Council opened on September 1 for the transaction of the usual quarterly business. The Council approved the protocol submitted to the Greek government whereby a further loan of £9,000,000 was authorized for the settlement of refugees. It directed the Financial Committee and the Secretariat to inquire into a request from the Bulgarian government for financial reconstruction. If the plan for this assistance is adopted, Bulgaria will be the sixth country, including the Free City of Danzig, to receive financial resuscitation from the League since the War. The League arranged a provision of nearly $350,000,000 for work in these countries needing assistance.

From the standpoint of nationality, representation in the permanent agencies of the League was becoming more and more general. A German member, Dr. Kastl, was appointed by the Council to the Permanent Mandates Commission and Jeremiah Smith, Jr., of Boston, who acted as the League's High Commissioner in the financial reconstruction of Hungary from 1924 to 1926, was appointed a member of the Financial Committee. The Council was able to drop from its future agenda the details of the liquidation of the property of refugees exchanged under the emigration convention between Greece and Bulgaria. This incident at one time threatened to disturb the peace of Europe, but has now been settled satisfactorily.

The forty-seventh session of the Council, which opened on September 17 with the newly elected members sitting, had before it the immensely difficult and important case of Hungarian Optants. The remainder of the Council's work at its sessions was for the most part referred to the Assembly.

EIGHTH ASSEMBLY. The Eighth Assembly of the League convened at Geneva in September and elected by a majority of one vote Señor Alberto Guani of Chile, President, over Count Albert Dietrichstein Mensdorff-Pouilly of Austria. The past presidents in order of their incumbency were: Paul Hymans, Belgium, 1920; Herman Adriaan Van Karnebeek, The Netherlands, 1921; Augustine Edwards, Chile, 1922; Cosme de la Torriente y Peraza, Cuba, 1923; Giuseppe Motta, Switzerland, 1924; Senator Raoul Dandurand, Canada, 1925; Montchilo Nintchitch, Jugo-Slavia, 1926. Argentina, Bolivia, Brazil, Honduras, Peru and Spain did not send delegates. The non-member nations were also absent: United States, Mexico, Russia, Turkey, Egypt.

Peace was the main topic of discussion in the deliberations. The speeches of the week, however, resolved themselves into extended oratorical efforts. Poland was the sponsor of the following propositions:

1) Any recourse to war in order to settle international disputes is and remains forbidden.

2) Every dispute of whatever nature arising between states or nations cannot be settled except by pacific means.

In consequence the Assembly urges members of the League to take action on these declarations and conform to their principles in their mutual relations.

In view of the vigorous objections offered to these statements Poland modified the plan to read thus:

Recognizing the solidarity which united the Commonwealth of Nations, inspired by a strong will to insure the maintenance of universal peace, affirming that war ought never to serve as a means of settlement for disputes between nations and that, therefore, a war of aggression represents an international crime, and considering that solemn renunciation of all war of aggression would be an excellent means of creating an atmosphere of general confidence eminently favorable to the procedure and development of the work begun along the lines of disarmament, the Assembly declares as follows:

1) All wars of aggression are forbidden.

2) The Assembly declares that states, members of the League of Nations, assume the obligation to conform to this principle.

In consequence the Assembly invites states, members of the League of Nations, to proceed to the conclusion of compacts of non-aggression, inspired by the idea that pacific means should be employed for the settlement of differences of every kind arising between states.

M. Briand's speech was the most notable event of the week. He proclaimed the passionate desire of France—"who had been nailed to the bloody cross of a war she has no desire to see repeated"—to be freed from the horrors of modern hostilities; and pledged his faith in the League. Bringing his clenched fist down upon the table with a crash, he said: "The world people will see to this, for if the League disappeared they would see that they were in danger of new and bloody conflicts; hence will they defend it with tenacity and trace for us our duty."

Through Foreign Minister Stresemann the German government let it be known that it would shortly accept the compulsory arbitration clause of the Permanent Court of International Justice. This meant that the Reich, first of all the great powers, had offered to blaze the trail of peace by accepting in advance, without any reservations whatever, the verdicts of the World Court, to which it pledged itself to refer all disputes with other nations. This announcement was roundly cheered.

Felix Cielens, Foreign Minister of Latvia, drew the attention of the Assembly to the 1926 military budgets of Europe which he said amounted to $1,500,000,000 or about the same amount expended in 1913, while the aggregate number of soldiers, more than 3,000,000, was only slightly under the 1913 figure.

Dr. Eusebio A. Morales, Minister of the Treasury of Panama, denied that his country had not been true to the League and stated that, unless the United States recognized Panama's sovereignty over the Canal Zone, the dispute should be referred to an impartial court of arbitration, which was taken to mean the World Court.

When Belgium was barred from presenting itself for reelection to a non-permanent seat on the League Council, the principle was upheld of extending in rotation the privilege of Council membership to as many states as possible. Thus Cuba, Finland and Canada were elected on September 15 to take the places formerly occupied by Belgium, Czechoslovakia and Salvador. Cuba received 40 votes, Finland 33 and Canada 26. Senator Raoul Dandurand represents Canada in the Council. One of the first acts of the three new representatives was to ask for an opportunity to hear the arguments of Hungarian and Rumanian delegates with respect to a dispute upon which the Council was about to take action. Hungarian landowners in Transylvania dispossessed of their estates under Rumania's agrarian laws, claimed heavy indemnities. Rumania maintained that Hungarian landowners in Transylvania could not claim exemption from the laws of the land and were entitled to no more indemnity than were dispossessed Rumanian landowners themselves. A Committee of the Council had already considered the dispute and presented through Sir Austen Chamberlain a report upholding Rumanian contentions in the main. The Hungarian delegate protested that the dispute was one which came under the jurisdiction of the Permanent Court of International Justice and not under that of the League Council. The Council postponed action, hoping for a direct settlement by the parties concerned.

The Third Assembly Committee continued the patient pursuit of its three-fold object—arbitration, security and disarmament. A subcommittee adopted a resolution which would commit the League to promoting particular or collective agreements for arbitration and security, and would lead to the apportionment of responsibility among member states for upholding Council decisions in case of conflict, distributing responsibility in such manner that individual states will tend to reduce their armaments. The Committee itself adopted in substance the Polish proposal forbidding all member states from entering on wars of aggression and binding them to observe the principle that pacific means must be used for the settlement of any international dispute whatsoever. It also decided to recommend the calling of an early conference on the supervision of the private manufacture of arms.

Substantial encouragement was drawn by the Committee from M. Briand's suggestion that it work on the assumption that next year's Assembly would adopt a new security covenant. Even more encouragement was generated by the understanding that got abroad about the same time that Sir Austen Chamberlain would not oppose the revival of a security covenant of the sort referred to by M. Briand providing it were not unpalatable to the British Dominions in the same sense that the Geneva Protocol of 1924 had been unpalatable to them.

A resolution submitted by M. Paul-Boncour of France was elaborated into a draft agreed to by a subcommittee of the League of Nations Assembly Disarmament Committee. This resolution impressed upon the League of Nations Preparatory Disarmament Commission that the principal condition of success in the matter of disarmament depends on assuring each State "of not having to respond alone to the needs of its security by means of its own particular armaments, but that it may make its security repose as well upon a collective action organized by the League of Nations." Hence the progressive extension of arbitration by means of particular or collective agreements was recommended, including the agreements between member states and non-members of the League.

The Preparatory Commission was asked to hasten its technical work, in order that the Disarmament Conference might be called at the earliest possible moment. The Council was asked to empower the Commission to form a committee from its members to study measures that would help disarmament by giving all States guarantees of arbitration and security. Measures recommended were: Coördination of arbitration or security agreements; help by the League to the members to execute their obligations; voluntary offering to the League by different States of their armed resources to uphold the Council's decisions in a conflict; graduation of arbitration, security and disarmament proposals according to the geographic situation of members.

The resolution was formally approved by the Assembly Committee. The Judicial Committee also approved Dr. Nansen's plan for an optional treaty of compulsory arbitration, opposed as impractical by Signor Scialoja. In general, the French proposals placed security as the first issue to be considered, while the Germans, it would appear, required that disarmament must come first.

The Assembly closed on September 27, with the address of the President, Alberto Guani. Discussion concerning the proposed Arbitration and Security Committee prolonged the Council's session until the following day. The meeting of the Preparatory Disarmament Commission was set for December 1. Cuba and Canada were added to this Commission, on which the New World was already represented by Argentina, Brazil, Chile, Colombia, Uruguay and the United States. The outlawry of war was solemnly and unanimously voted by the Assembly. A similar resolution was adopted by the Council concerning the Polish proposal for the outlawing of war, as follows:

"The Council, considering the resolution adopted by the Assembly on September 4, forbidding all wars of aggression and declaring that all pacific means must be employed to settle differences of whatever nature which may arise between States, begs the Secretary General to bring the said resolution to the attention of all states members of the League."

After prolonged discussion the Assembly yielded to the Latin-American and Scandinavian delegates, who insisted that sufficient credits be voted to make permanent the efforts for the codification of international law.

The Disarmament Committee of the Assembly voted to ask the United States not only to continue to sit on the Preparatory Commission but also on the special Security Committee which will be created to study the best means of extending security and arbitration compacts, as necessary for the reduction of armaments. Dr. Stresemann, who announced on September 23 that Germany had signed the compulsory arbitration clause of the Permanent Court of International Justice, insisted in a speech on the following day that armaments could not and should not form the basis of security, arguing that their inevitable effect was a threat to other nations. His plea was echoed by other leaders of France, Holland and Belgium. The Assembly adopted a report by Senor Guerrero of Salvador on the private manufacture of arms and the publicity of manufacturing figures. The report calls for an international conference on the subject.

Unspectacular and without striking concrete achievements, the Eighth Assembly demonstrated more clearly than any previous session that the League of Nations was "a going concern" firmly entrenched in the confidence of the responsible leaders of more than fifty countries. During the three weeks, the speakers in their public debates and in their discussions in the lobbies frequently criticized it for specific failures. But this was as though no one any longer feared that the League might be endangered by frank speaking, so accepted and essential a part of the peace machinery of the world has it now become.

For the first time the representatives of the small states criticized the actions of the great powers within and without the League. Speaker after speaker charged M. Briand, Sir Austen Chamberlain and Dr. Stresemann with imperiling the future of the League by tripartite arrangements made outside of Geneva and by the establishment of a secret council within the Council of the League.

The replies of the Foreign Ministers of France, Great Britain and Germany were direct and forceful. They argued that any agreement which strengthens the friendly ties between two or more countries must in the long run strengthen the League. As to private conferences during the sessions of the League, what could be more natural than that they should take advantage of their meeting in Geneva to confer in a friendly and intimate manner about matters which might only be complicated by public or formal diplomatic discussion. The persistent determination of many of the smaller states and of France to secure through the League of Nations the revival of the essential principles of the Geneva Protocol was manifest early. This movement, despite the open opposition of the British, grew until it was recognized as the dominant feeling of the Assembly. This keen desire to tighten the Covenant's guarantees against war and to stiffen and make more certain the penalties against an "aggressor" state was reflected very inadequately in the resolution about disarmament, security and the codification of international law finally adopted.

To carry out the resolutions of the recent International Economic Conference, the Assembly created a Consultative Committee. This is to be made up of thirty-five members prominent in industry, commerce, agriculture, finance and transport. Americans, as well as citizens of states members of the League, are to be included.

In the view of the Foreign Policy Association the election of Canada as one of the nonpermanent members of the Council was an interesting precedent. For the next three years, the British Empire would have two members on the League's executive board. It was significant that this fact seemed not to have weighed at all against Canada's eligibility. Incidentally it might be recalled that Ireland at the Assembly of 1926 unsuccessfully proposed herself as a candidate.

Germany at Geneva strengthened herself and the League. Though a member for exactly one year, as the Foreign Policy Association pointed out, the representatives of the Reich conducted themselves with such discretion and such an evident desire to fit into the traditions of the Assembly and the Council that one heard little but praise of their actions. There seemed no sufficient reason to doubt the sincerity of Stresemann's contention that the government in Germany had resolutely set itself to work out Germany's security in large part through the instrumentality of the League. Indeed, the Reich occupied at Geneva a peculiarly strategic position. As a great power, and together with France and Great Britain subjected to criticism by the smaller states, she had been drawn closer to her former enemies. On the other hand, German interests, particularly in the matter of disarmament, were frequently the same as those of the smaller countries. Therefore, with one foot in each camp, Germany was courted by both.

This Eighth Assembly was assuming, in retrospect, the aspect of being perhaps the best of the annual meetings since the League began functioning in 1920. There was nothing startlingly dramatic; merely a month's incessant work in which every phase of international life to-day was touched upon—disarmament, arbitration, law, economics, transit, health, social and intellectual problems. Forty-nine nations were represented, all the members of the League except Spain and Brazil, which had given notice of withdrawal because they were not given permanent seats on the Council, and four of the score of South and Central American States. Practically one half of those present were represented by statesmen immediately responsible for their country's foreign affairs; one head of a government, Switzerland; two Prime Ministers, Lithuania and Luxemburg; the Locarno trio of Briand, Stresemann and Chamberlain, Foreign Ministers respectively of France, Germany and Great Britain; and the Foreign Ministers of eighteen other nations; Albania, Belgium, Bulgaria, Czechoslovakia, Denmark, Estonia, Finland, Greece, Hungary, Latvia, Lithuania, Netherlands, Poland, Portugal, Rumania, Salvador, the Serb-Croat-Slovene Kingdom and Sweden.

Discussions ranged far and wide from the broadest principle to the most particular detail. There was at the beginning of the session, in accordance with a custom which was developed, a general debate on the work of the past year. In some previous years this debate had been dull and perfunctory; it had even been difficult to find speakers. In this Assembly, however, it showed an extraordinary spontaneity, running over five days with thirty different speakers, and with a fitting climax by Briand, Stresemann and Chamberlain.

In the general debate, the most striking declaration gave notification of Germany's signature of the Optional Clause giving the Permanent Court of International Justice compulsory jurisdiction in legal disputes. France took the same action in 1924 under Herriot, and both nations accepted the obligations as between themselves in the Locarno treaties.

The United States was not represented in any of these discussions. In the preparatory committees or special conferences, whose work was reviewed by the Assembly, both the American government and American citizens had often taken a prominent part, and in the future work outlined by the Assembly both will undoubtedly continue to do so, but in the central gathering America's voice was unheard.

A brochure printed in Geneva and distributed in America by Professor Manley O. Hudson, of the Harvard Law School, gives in full detail the extent of American cooperation from the beginning. It is entitled "The United States and the League of Nations, 1920–1927."

The general debate was not only of importance to the United States as manifesting the present political tendencies of the world, but also because of definite references made to American policies. There were, for instance, the explanations of Briand and Chamberlain for the failure of the Naval Conference, which might or might not have coincided with the American viewpoint; references to United States government coöperation in the forthcoming Arbitration and Security Committee and in the previous conferences such as Economics and Transit; discussions for sending League technical commissions to South America; even the speech of the delegate of Panama, who had come all the way to Geneva in order, while asking for no action, to outline the relationship between that country and the United States, and thus remove certain doubts created in Europe by the recent draft treaty between the two countries. Where the other great governments, Great Britain, France, Italy, Japan, and Germany, had delegations of from twenty to fifty persons to watch over their interests and express their views, the United States was in no way officially represented, though unquestionably the largest number of visitors and journalists were Americans.

Another vital topic was that of the economic situation of the world in which the League was playing a useful part as a coöperative association of governments in the economic and financial reconstruction of Europe. The Brussels Financial Conference of 1920 laid down principles of sound finance which proved the salvation of several governments; the Financial Committee authorized seven international loans totaling $350,000,000 and based on principles which had remodeled the financial organization of certain states and served as the basis of the Dawes plan; and the Economic Committee and Conference had opened the way for the next line of progress in world economic problems.

Next to armaments, the economic work of the League was the most widely discussed subject at the Assembly. Where the Economic Conference had brought together business men, economists and technical experts, the Assembly provided a new and even wider platform for political leaders, such as Briand, Stresemann and Chamberlain, to discuss the technical results of the Conference in the light of political considerations. To put it briefly, the debates provided a complete endorsement of the work of the Conference.

The League Council increased the number of members of the Permanent Mandates Commission from nine to ten, the new seat going to Germany. Thus after nine years, the Reich was to have a voice in the control of its former colonies.

On October 31, the tenth anniversary of the Russian Revolution, an announcement was made by the League that Russia would participate in the work of the Preparatory Commission for a Disarmament Conference. The lack of Russian coöperation heretofore had been considered by many authorities as an almost insuperable obstacle to substantial progress in the matter of land disarmament. Russia's part, therefore, in the discussions of the Commission, resumed in November, was watched with the closest interest throughout the world, although they proved to be disconcerting rather than helpful.

In regard to the League's investigation on the amelioration of labor conditions in Portuguese and African colonies, the last definite step taken was the submission by the Secretary General to the Council of a resolution, adopted by the Assembly at its meeting Sept. 25, 1926, which read as follows: "Taking note of the work undertaken by the International Labor Office in conformity with the mission entrusted to it and within the limits of its constitution and considering that these studies naturally include the problem of forced labor; the Assembly requests the Council to inform the Governing Body of the International Labor Office of the adoption of the Slavery Convention, and to draw its attention to the importance of the work undertaken by the Office with a view to studying the best means of preventing forced or compulsory labor from developing into conditions analogous to slavery."

Several British reports dealing with slavery were discussed in the League's Sixth Committee (for political questions), in the Eighth Assembly. Domestic slavery was reported as abolished at Kalat in Baluchistan. Slavery was also reported suppressed in remote parts of Burma, as a result of government freeing expeditions, one of which had released four thousand slaves. Slavery was also completely abolished in Tanganyika territory in East Africa. As a result of the discussion every colonial Power promised to ratify the Slavery Convention, which heretofore had been signed only by Great Britain.

LEATHER. The American leather industry by the end of 1927 had recovered materially from the post-war difficulties of 1919 and 1920, which were due to over-expansion caused by the stimulus given to production by the War, to the unforeseen decline in export sales after the War, and to a large supply of hides on the market as a result of deflation in the cattle industry. The industry in the United States had devoted itself, however, during the intervening years to the problem of adjusting output to demand and to working off the surplus supply of hides, with the result that tanners' stock of leather was decreased at the end of 1927 as compared with 1926 by 42 per cent in the case of sole leather and 10 per cent in other lines, and in some cases stocks had reached their lowest recorded point.

About 80 per cent of the American leather was taken by the boot and shoe industry, with the upholstery, harness, belting, bag, case and strap leather, glove and fancy leather industries absorbing the remainder of the supply.

In 1927 statistics from the Federal inspection of slaughter houses indicated fewer cattle and other animals slaughtered than in the previous year, the figures being for 1927: 9,520,000 cattle as compared with 10,180,000 for 1926; 4,887,000 calves as compared with 5,153,000 calves in 1926; 12,882,000 sheep as compared with 12,961,000 sheep in 1926; and 23,000 goats as compared with 32,000 goats in 1926. In the estimate of figures for animals on farms in the United States the cattle at the end of the year 1927 were stated at 55,696,000 as compared with 56,872,000 on January 1; the sheep, 44,545,000 on December 31 as compared with 41,846,000 on January 1; horses, 14,541,000 on December 31 as compared with 15,145,000 on January 1; and mules, 5,566,000 on December 31 as compared with 5,679,000 at the beginning of the year. See LIVESTOCK.

The tanning industry of the United States in 1927 consumed 132,217,000 hides and skins as compared with 126,238,000 pieces in 1926, according to the United States Bureau of the Census. These were distributed as follows:

		1927	*1926*
Cattle-hide leather	hides	21,820,000	21,496,000
Calf and kip leather	skins	16,986,000	15,745,000
Goat and kid leather	do.	50,735,000	49,776,000
Sheep and lamb leather	do.	36,062,000	31,665,000
Other leather	pieces	6,614,000	7,556,000
Total, hides and skins		132,217,000	126,238,000

The production of cattle hide leather in 1927 amounted to 43,758,000 sides as compared with 43,165,000 sides in 1926, and the consumption was 45,770,000 sides in 1927 as against 45,920,000 sides in 1926. The 1927 production was distributed as follows: sole, 15,829,000 sides; belting, 929,000 butts; side upper, 13,459,000 sides; patent sides, 8,388,000 sides; harness, 1,016,000 sides; bag, case, and strap, 1,105,000 sides; upholstery, 502,000 hides; and all other, 1,099,000 sides.

The production of calf and kip leather in 1927 totaled 16,986,000 skins as against 15,745,000 skins in 1926; goat and kid leather, 50,735,000 skins in 1927 as against 49,776,000 skins in 1926; sheep and lamb leather, 36,062,000 skins in 1927 as against 31,665,000 skins in 1926; chamois and fleshers, 3,090,000 pieces in 1927 as against 3,498,000 pieces in 1926; cabretta leather, 3,407,000 skins in 1927 as against 4,477,000 skins in 1926; splits, 20,489,000 pieces in 1927 as compared with 20,161,000 pieces in 1926.

The American foreign trade in hides, skins, leather, and tanning materials during 1927 was considerably in excess of $230,000,000, which sum represented a substantial increase in these items not only as compared with previous years, but as regards the quantity. The United States trade in these commodities in 1913 was valued at $163,705,000, increasing to $198,317,000 in 1926, and as stated on the basis of preliminary figures amounting to $230,691,000 in 1927. Of the total number of the hides and skins tanned annually in the United States, which was approximately 50 per cent of the world's leather output, more than 22 per cent of the cattle hides, almost 50 per cent of the calf skins, and about 99 per cent of the goat and kid skins are of foreign origin. In 1927 the imports of hides and skins were valued at more than during previous years, but largely through increased purchases from foreign sources. In 1913 the value of hides imported was $105,873,000, declining to a value of $96,811,000 in 1926, and rising to $112,845,000 in 1927.

At the same time the United States was also exporting hides and skins, there being during the year a world-wide scarcity in this field causing a decided increase in American exports. Hides and skins exported from the United States were valued at $11,466,000 during 1927 as compared with $10,833,000 in 1926 and $2,979,000 in 1913.

The imports of leather into the United States had increased from a value of $9,292,000 in 1913 to $28,622,000 in 1926, and approximately $37,436,000 during 1927, the leather imports being equal to almost 70 per cent of the total value exported from the United States during the same year.

For the first time since 1920 the leather exports from the United States were valued at more than $54,000,000, due in part to increased prices, but foreign shipments on a quantity basis were about 5 per cent greater than the average yearly sales for the five years previous. The growth of the export market can be appreciated when it is stated that exports of leather from the United States in 1913 were valued at $38,438,000 as compared with $49,814,000 in 1926, and approximately $54,004,000 in 1927. The value of the United States foreign trade in hides, skins, leather, and tanning materials as summarized in *Commerce Reports* is given in the accompanying table.

Item	*1913*	*1926*	*1927* [a]
Imports of hides and skins	$105,873,000	$96,811,000	$112,845,000
Exports of hides and skins	2,979,000	10,833,000	11,466,000
Reëxports of hides and skins	2,519,000	4,959,000	6,536,000
Imports of leather	9,292,000	28,622,000	37,436,000
Exports of leather	38,438,000	49,814,000	54,004,000
Imports of tanning materials and extracts	4,032,000	5,842,000	6,628,000
Exports of tanning materials and extracts	571,000	1,436,000	1,781,000
Total	163,705,000	198,317,000	230,691,000

[a] Preliminary figures.

Leather manufactured goods to the amount of $23,499,194 were exported from the United States in 1927. Of this amount foreign countries took $18,382,798 and non-contiguous territories $5,116,396, the grand total being an increase of 3.2 per cent over the 1926 valuation of $22,756,650, of which $18,527,705 went to foreign countries and $4,228,945 to non-contiguous territories.

The imports of leather manufactured goods into the United States during 1927 were valued at $21,657,420, an increase of 25.8 per cent over $17,206,959 for 1926, of which leather gloves constituted 48.8 per cent, or $10,569,182, and footwear 27.3 per cent, or $5,918,366. Of the 3,003,839 pairs of footwear imported, 1,477,435 pairs were leather boots and shoes (free); 460,073 pairs, leather slippers (free) and 1,066,331 pairs, dutiable footwear.

A million-dollar foundation was established during the year by the Tanners' Council of America to stimulate the study of leather with the view of improving American leather through scientific research. Another significant development was the founding of style bureaus and the addition of stylists to staffs of shoe manufacturers in order to meet the demands of the consuming public and to expand further the production in the industry.

LEEDS, GEORGE GODOLPHIN OSBORNE, Tenth Duke of. British yachtsman, died in London, May 10. He was born at London, Sept. 18, 1862, and was educated at Eton and Trinity College, Cambridge. As the Marquis of Carmarthen he represented the Lambeth-Brixton division in the House of Commons from 1887 until 1895, when he succeeded to the title. He next served as treasurer of the Royal Household, from 1895 to 1901, being also a member of the London County Council from 1898 until his death. For a time he was a lieutenant in the Yorkshire Hussars. He was said to be the greatest manufacturer of gin in the world, owning and managing the Holland distilleries in London. A leading sportsman, his greatest interest was in yachting, and for years he was vice commodore and, after the death of Lord Ormonde in 1920, commodore of the Royal Yacht Squadron at Cowes.

LEEWARD ISLANDS. A group of islands belonging to Great Britain in the West Indies; the most northerly group of the British Lesser Antilles, lying to the north of the Windward group and southeast of Porto Rico; comprising Antigua, Dominica, Montserrat, St. Kitts (with Nevis and Anguilla), and the British Virgin Islands. Total area, 715 square miles; population at the census of 1921, 122,242, as compared with 127,193 in 1911. The two largest islands with their area and population in 1921 were: Dominica, 305 square miles and 37,059 inhabitants; Antigua, 108 square miles, but with Barbuda and Redonda 170 square miles, with a population of 29,767. The chief towns are: Roseau (Dominica), 7000 inhabitants; St. John (Antigua), 9262 inhabitants; and Basseterre (St. Kitts), 7736 inhabitants. The British Virgin Islands comprise all those in the group which do not belong to the United States; area, 58 square miles; population (1921), 5082. The staple products in most of the islands are sugar and molasses. Cacao and onions are also grown. The culture of tobacco and cotton is successfully carried on in Dominica. On that island and Montserrat, lime juice and citrate of lime are important products. The accompanying table from the *Statesman's Year Book* for 1927 gives statistics of finance and commerce for 1924–25 and 1925–26:

	1924–25 £	*1925–26* £
Revenue	240,272	246,902
Expenditure	268,285	259,472
Public debt	281,340	279,250
Imports	758,170	786,558
Exports	667,623	727,852

The islands are divided into five presidencies under a central government, at the head of which is a governor, who is also commander-in-chief, a federal executive council, and a federal legislative council. Governor, Sir Eustace Fiennes.

LEGION, AMERICAN. See AMERICAN LEGION.

LEGISLATION. See AGRICULTURE LEGISLATION; LABOR LEGISLATION; paragraphs on *Legislation* under the several States; and the article UNITED STATES.

LEHIGH UNIVERSITY. A non-sectarian institution for the higher education of men at Bethlehem, Pa.; founded in 1886. It is composed of colleges of engineering, business administration, and arts and science. The enrollment for the autumn of 1927 was 1517, and for the summer session of that year there were 446 registered. The number of members of the faculty was 151. Productive endowment funds for the year amounted to $5,024,490.40, and the income for the year to $913,415.22, exclusive of gifts. There were 121,967 bound volumes and 51,390 pamphlets in the library. In the early part of 1927 announcement was made of the gift of $1,000,000 from James Ward Packard, founder of the Packard Motor Car Company, to be used for the erection of an Electrical and Mechanical Engineering Laboratory, plans for which have been completed. President, Charles Russ Richards, M.M.E., Eng.D., LL.D.

LELAND STANFORD UNIVERSITY. See STANFORD UNIVERSITY.

LENHER, lĕn'ĕr, VICTOR. American chemist and educator, died at Madison, Wis., June 13, suddenly. He was born at Belmond, Iowa, July 13, 1873. He studied at Dickinson College, 1889–90, and at the University of Pennsylvania. He was an assistant in chemistry at the University of California, 1893–96, and at Columbia University, 1898–1900, and served at the University of Wisconsin as assistant professor of general and theoretical chemistry, 1900–04; assistant professor of chemistry, 1904–07, and thereafter as professor. He was noted for his research work concerning the properties and uses of selenium and tellurium, and was the discoverer of the unusual solvent properties of selenium oxychloride. During the World War he was a major in the chemical warfare service, U. S. Army, and he served also as chief of university relations and adjutant to Maj.-Gen. William L. Sibert, chief of Governmental relations. From 1919 to 1924 Professor Lenher was chairman of the National Research Council's committee on the uses of selenium and tellurium. He wrote: *Laboratory Experiments* (1902; 4th ed., 1906); *The Electric Furnace* (translated from the French of Moissan) (1904) and numerous papers on research in inorganic chemistry.

LEPROSY. The most important movement of the year in the campaign against leprosy was made the subject of an editorial in the *Journal of the American Medical Association* for May 28. It is the project favored by the late General Leonard Wood, U. S. A. (q.v.) of appealing to the American people to subscribe $2,000,000 to fight leprosy in the Philippine Islands. The lepers in this area, as should be well known, had been segregated in the Island of Culion to the number of 6000, constituting the greatest leper colony with the greatest opportunity for a clinical research laboratory in the history of the world. More than 1000 lepers, thanks to the physicians of the colony and the recent improvements in treatment have been returned to their homes with the disease "arrested and non-contagious." Heretofore this colony has been administered solely by the Philippine Health Department, which annually appropriates $600,000 for upkeep, about a third of its total appropriation. Since this amount is insufficient for the needs of the colony it has been advocated, in connection with the proposed endowment of $2,000,000, to establish a special commission to relieve the regular local health department of some of its burdens. This has the objection of divided authority and of the possibility of destroying the present excellent relations between the health department and the natives, the latter being naturally suspicious toward and aloof from foreign control.

Under date of October 5 The Leonard Wood Memorial for the Eradication of Leprosy under the chairmanship of General J. G. Harbord sent out a circular to the medical profession incidentally as former colleagues of the late General Wood, asking for contributions to carry out the original plan of the deceased to obtain a fund of $2,000,000 to end for all time the deadly menace of leprosy. During his incumbency as Governor General of the Philippines, Wood had made seventeen visits to the Island of Culion and had seen over a thousand cures among the milder cases. He brought the message that leprosy could be eradicated not only in the Philippines but throughout the world if the necessary funds could be obtained for an adequate medical staff and equipment. His friends were zealously taking up the task to complete the work for the 3,000,000 lepers of the world as a memorial to a great physician, soldier and administrator.

LE QUEUX, le kū, William Tufnell. British novelist, died at Knocke, Belgium, October 13. He was born in London, July 2, 1864. He was educated at London and in Italy, was first an art student and then a journalist in Paris, and returned to London to become editor of *Gossip* and *Piccadilly*. From 1888 to 1893 he was a member of the staff of the *Globe*. His taste for travel took him to the Orient, to Africa and to the Arctic regions. At one time he was a member of the council of the Republic of San Marino, Italy. His novels dealt principally with mystery and melodrama and the secret services of the various European countries. During the war he was an adviser to the British government on secret service. He wrote many novels, including: *Guilty Bonds* (1890); *Devil's Dice* (1896); *Of Royal Blood* (1899); *Her Majesty's Minister* (1901); *Secrets of the Foreign Office* (1903); *The Invasion* (1906), in which, it was said, he forecast the World War; *The House of Whispers* (1909); *Fatal Fingers* (1912); *The Hand of Allah* (1914); *The War of the Nations* (1914); *Whoso Findeth a Wife* (1915); *German Spies in England* (1915); *Rasputin, the Rascal Monk; the Secret Life of the Ex-Tsaritza, The Intriguers* (1920); *Landru* (1921); *Where the Desert Ends* (1923); *Fine Feathers* (1924); *The Crystal Claw* (1924); *The Broadcast Mystery* (1924); *Hidden Hands* (1925); *The Blue Bungalow* (1925), and *The Fatal Face* (1926).

LEROUX, lĕ rōō, Gaston. French novelist, died in April. His detective and mystery novels were popular in France, and, in translations, in England and the United States. Two of them, *The Mystery of the Yellow Room* and *The Phantom of the Opera*, were turned into motion picture plays in the United States. Leroux had been a traveler and a newspaper correspondent before becoming a novelist, and had visited parts of the world that are seldom seen by Americans or Europeans. In an interview with him written several years before his death it was said that he had been a lawyer, a legal chronicler, a stage critic, a writer on hygiene, a dramatist, a newspaper correspondent, a globe trotter and a novelist.

LEVERMORE, Charles Herbert. American educator and peace advocate, died at Berkeley, Cal., October 20. He was born at Mansfield, Conn., Oct. 15, 1856. He graduated at Yale University, 1879. From 1879 to 1883 he was principal of the Guilford, Conn., Institute, and in 1884–85 was university fellow in history at Johns Hopkins University, Baltimore, Md. While there he formed a close personal friendship with Woodrow Wilson, who also was taking a post-graduate course. In 1885–86 Mr. Levermore was instructor in history and German at the Hopkins Grammar School, New Haven, Conn., and in 1886–88 instructor in history at the University of California. Then for one year he was assistant professor of history at the Massachusetts Institute of Technology, becoming professor in 1889 and remaining there until 1893, when he accepted the principalship of Adelphi Academy, Brooklyn, N. Y. In 1896 the academy became Adelphi College, and he was president until 1912 and professor of history, 1912–14. Dr. Levermore was director of the college and university bureau of the World Peace Foundation, Boston, Mass., 1913–17, secretary of the New York Peace Society from 1917, and secretary of the World Court League and League of Nations Union from 1919. He attained international prominence in 1923 when he won the prize of $50,000 offered by Edward Bok for the best plan for preserving the peace of the world, an additional $50,000 being offered by Mr. Bok for payment when the prize-winning plan should be adopted by the Senate of the United States. (See The New International Year Book, 1923 and 1924, *International Peace and Arbitration.*) Following the receipt of the prize, Dr. Levermore spent some time in Europe, in a study of political and economic conditions. He wrote *The Republic of New Haven* (John Marshall Prize, Johns Hopkins University) (1886); *Forerunners and Competitors of the Pilgrim and Puritan* (2 vols., 1912); *Year Books of the League of Nations*, vols. i, ii and iii, covering the years 1919–22; *Life of Samuel T. Dutton* (1922), besides several song books and hymnals for students.

LIBERIA. A negro republic on the west coast of Africa, reaching from the British colony of Sierra Leone on the west to the French Ivory coast on the east, with about 350 miles of coast line, and extending inland at some points to a distance of 200 miles. Area, variously estimated at 35,000 to 43,000 square miles, and population at 2,000,000 to 2,500,000, most of whom live in the interior. They belong to about 40 tribes and speak as many languages, though they fall into the six main stocks of: Mandingos, who are Mohammedans; Gola, Kpwesi, Gissi, Kru, and Greboes. The civilized inhabitants, reported at about 50,000, live along the coast, speak English, and are industrious. Capital, Monrovia, with 6000 inhabitants (including Krutown). The ports of entry are Monrovia, Robertsport, Marshall, Grand Bassa, Buchanan, River Cess, Liberian Gene; Saywolu, Greenville, Nana Cru, Grand Cess, Sasstown, Harper, Kablake, Half Cavalla, and Webo.

Production. Agriculture, mining and industrial resources are comparatively undeveloped. Although the soil is very fertile, cultivation is backward. Cacao and cotton are produced in small quantities, but the staple product is native coffee. Other products include: Piassava fibre, palm oil, palm kernels, chillies, beniseed, anatto seed, rice, beeswax, and tortoise shell. The mineral resources include: Gold, copper, tin, zinc, monazite, lead, corundum, lignite, and iron. The last named is worked by natives. Some diamonds have been found.

Commerce. The total value of exports in 1925 was $1,715,060 and the total value of imports $2,115,000. In 1926 the imports from the United Kingdom were valued at £173,970 and the exports to the United Kingdom £89,338. The chief exports are coffee, cacao, palm kernels, piassava fibre, palm oil, ivory, rubber, and camwood. The chief imports are rice, cottons, haberdashery, salt, provisions, arms and ammunition, hardware, tobacco, ready-made clothing, glass and earthenware, rum, gin, building timber, dried and preserved fish, and beads.

Finance. No later statistics on finance are available than those for 1924–25 when the revenue and expenditure balanced at $943,208. The public debt on Sept. 30, 1924, was $2,150,000.

Communications. In 1927 there were no railways of any kind, and only three stretches of motor roads, of 50, 40, and 23 miles, respectively. Ox-carts were the chief means of conveyance. There are two wireless stations at Monrovia and there is direct cable communication with Europe and New York.

Government. The constitution is modeled after that of the United States. Under it executive power is vested in the president, who is assisted by a council of six ministers, and legislative power in the Congress made up of the Senate and House of Representatives. Qualifications for the franchise are negro blood and ownership of land; although the natives are not disfranchised, they take no part in political affairs. The official language of the administration is English. President, in 1927, Charles D. B. King (chosen for the term of 1924–28); vice president, H. Too Wesley.

LIBRARY ASSOCIATION, American. An official organization that functions "to promote library service and librarianship" and to carry out the avowed intention of its founders "by disposing the public mind to the founding and improving of libraries" in the United States and Canada. In 1876 it had 103 members; in 1927 more than 10,000. Its activities were carried on by its officers; by a staff of nearly seventy people engaged in studying the problems of adult education and the library, education for librarianship, library extension, and in giving advisory assistance to all who were interested in library development; by 64 voluntary committees engaged in studying library problems, such as book buying, library legislation, revenues, salaries, international relations, school libraries, cataloguing, civil service relations, library extension, work with the blind, work with the foreign-born, etc., and by hundreds of individual volunteer workers who gave their time without remuneration. The activities of the Association also included publishing and distributing books and pamphlets on different aspects of library work and providing buying lists for libraries, schools and individuals, and by the distribution of leaflets about library work, posters, broadsides, etc.

The Association published books and pamphlets on library work, buying lists for libraries, etc. Two periodicals are issued: *The Bulletin*, a monthly publication, including the *Conference Proceedings* and *The Handbook;* and the *Book-list*, issued in 10 numbers, as a guide to the selection and purchase of the best current books. During 1927 thirty-nine publications were issued, among them *A Survey of Libraries in the United States*, vols iii and iv; *Classics of the Western World; Bibliography of Library Economy* and *Circulation Work in Public Libraries.*

The Association up to the end of 1927 had published 43 *Reading with a Purpose* courses in connection with its work for the advancement of adult education. These courses were prepared by specialists in various subjects and were designed to help men and women ,and boys and girls who wished to continue their education through systematic reading after leaving school.

The forty-ninth annual conference of the A. L. A., held in Toronto, June 20–27, 1927, was attended by nearly two thousand members. The John Newberry Medal, conferred annually by the Children's Librarians' Section for the most distinguished contribution to literature for children by an American author published during the year, was awarded to Will James for *Smoky*. The executive headquarters of the A. L. A. are at 86 East Randolph Street, Chicago, Illinois, and its officers for 1927 were: President, Carl B. Roden, Public Library, Chicago, Illinois; first vice president, Charles H. Compton, Public Library, St. Louis, Missouri; second vice president, Charles E. Rush, Public Library, Indianapolis, Indiana; treasurer, Matthew S. Dudgeon, Public Library, Milwaukee, Wisconsin; secretary, Carl H. Milam, 86 East Randolph Street, Chicago, Illinois; assistant secretary, Sarah C. N. Bogle, 86 East Randolph Street, Chicago, Illinois.

LIBRARY PROGRESS. Over 800 delegates, representing 17 countries attended the Jubilee Conference of the Library Association (British) in Edinburgh in September. At this meeting official delegates from the American Library Association together with representatives from Austria, Belgium, Canada, China, Czechoslovakia, Denmark, France, Germany, Great Britain, Holland, Italy, Norway, Sweden, and Switzerland, formed the International Library and Bibliographical Committee.

In Canada and the United States during the year two library schools were established, at McGill University in Montreal, and at the New York State College for Teachers at Albany, the aim of the latter school being to prepare for school library work. Plans for the new graduate library school at the University of Chicago, for which funds were given by the Carnegie Corporation, were well under way for its opening to students in 1928. Through the Paris Library School, conducted under the auspices of the American Library Association, American library methods were being spread throughout Europe. In 1927 a training school for librarians was established at Jerusalem by one of the graduates of the Paris Library School.

A committee to study the development of habits of reading was appointed by the American Library Association and the American Association for Adult Education and received through the latter a grant from the Carnegie Corporation for its first year's work, the purpose of the study being to discover what it was in the experience of some persons which caused them to acquire and continue desirable habits of reading and what was lacking from the experience of others which left them without such habits. The first meeting of the committee was held in December. The first national congress of librarians of Mexico was held in March, 1927, and a constructive programme of expansion and extension of Mexican libraries was inaugurated during the year.

There were several large gifts made for library purposes during 1928. John D. Rockefeller, Jr., gave $2,000,000 for the erection of a library for the League of Nations and $700,000 to the Library of Congress to be used over a period of five years to enlarge the collection of transcripts or facsimiles of source material in American history and to enlarge the bibliographic apparatus of the Library in the interest of making its information service available to other libraries and to research investigators. The Carnegie Corporation of New York made a grant of $35,000 to continue for two more years the parish or county library demonstration which was being carried on in Louisiana. The Carnegie Corporation also appropriated $6000 to complete a survey of library conditions in British Columbia. The Laura Spelman Rockefeller Memorial gave $2515 for the use of the Association in 1927 in supplying foreign libraries with American periodicals and $1500 for work in connection with the preparation of the List of Foreign Government Serials; $37,500 was received from John D. Rockefeller, Jr., for the use of the Paris Library School during 1926–27; the Carnegie Corporation of New York gave $118,750 towards the maintenance of the American Library Association in 1927, and the Carnegie Endowment for International Peace appropriated $3800 for the use of the Association for international library coöperation.

Notable new library buildings completed during 1927 were those at the University of Arizona, at the University of Washington, at Dartmouth College, at Los Angeles, Philadelphia, Birmingham, and at Queens (New York).

LIBYA. The name of a former Italian colony on the north coast of Africa. In 1919, for administrative and military purposes it was divided into Cyrenaica and Tripolitania. See articles under these titles.

LIFE INSURANCE. See INSURANCE.

LIGHTHOUSES. On June 30, 1927 the U. S. Bureau of Lighthouses was maintaining a total of 18,363 aids to marine navigation, as compared with 18,090 at a corresponding date in 1926, or a net increase of 273 during the year. There were also in commission 755 airway aids, including 616 aids maintained by the Post Office Department up to June 30, and transferred to the Bureau of Lighthouses, July 1, 1927. According to the annual report of George R. Putnam, Commissioner of Lighthouses, improvements made in aids to marine navigation during the fiscal year were as follows: 81 fixed lights were changed to flashing or occulting; the illuminant of 7 lights was changed to incandescent oil vapor; the illuminant of 80 lights (including 15 lighted buoys) was changed to acetylene; the illuminant of 13 lights (including 3 lightships), was changed to electric incandescent; 12 radio-beacons were established; 1 gas-operated fog signal was installed at a light station; 7 diaphones and 1 electric siren were established and the fog signals at 8 other important stations and light ships were improved by the installation of more efficient apparatus; 700 aids to navigation of various classes were discontinued during the year; in Alaska 41 new aids were established, making a total of 767, including 284 lights, 19 gas buoys, 1 radio-beacon (the first to be established in Alaska and placed in commission July 14, 1926), 14 fog signals, 290 buoys, and 159 day marks. In 1910 the total number of aids in Alaska was 160. On Mar. 1, 1927, a system of broadcasting weather reports by radio on four lightships on the Pacific Coast was put into effect.

The most important new projects undertaken by the Lighthouse Bureau during the year were the building of a primary light and fog signal station on Lansing Shoal near the northern end of Lake Michigan, to take the place of a lightship; the rebuilding of the Harbor of Refuge Light Station, the principal signal of the entrance to Delaware Bay, was nearing completion, while a light station on Martins Reef, near the end of Lake Huron, to replace a lightship, was well advanced. Other work of the year included a station on Milwaukee North Breakwater and the enlargement of the important lighthouse depot at Portsmouth, Va.; one new lightship (*No. 111*) was completed during the year, being the first to be equipped with a Diesel engine; this was placed in service Dec. 30, 1926, on North End, N. J.; a new light tender was finished and immediately put in service in Mississippi flood work; 2 surplus mine planters were reconditioned and were placed in service in Porto Rico and California. During the year 12 additional radio-beacon stations were placed in condition, including 1 at Cape Spencer, Alaska, and 1 at Makpuu Point, the first in the Hawaii Islands. This made a total of 37 radio-beacons in operation with installation in progress at 17 stations. In view of the turning over to the Lighthouse Bureau of the aids to air navigation an officer of the lighthouse service was appointed chief engineer of the airways division, and on the 1386 airways lighted during the year 139 aids were established and placed in operation, while work was begun on 649 miles of additional airways. During the year 54 new automatic marine lights on fixed structures were established and 28 lights were changed from attended to automatic, making at the end of the fiscal year a total of 1203 automatic fixed lights on fixed structures; in addition to 830 buoys with automatic lights, 14 fog bells were also operated automatically. The table on page 469 summarizes the aids to navigation and changes in the fiscal year ended June 30, 1927.

In England Trinity House installed experimentally at Round Island in the Scilly Isles wireless signals which were to be established generally at lights stations on the coast of England. This system involved an automatic direction finder useful in time of fog to enable a ship to take its bearings on the transmitting station.

SUMMARY OF AIDS TO NAVIGATION AND CHANGES DURING FISCAL YEAR

Class	*Established*	*1927*			*Total, June 30—*	
		Discontinued	*Increase*	*Decrease*	*1926*	*1927*
Lighted aids:						
Lights (other than minor)	125	40	85	....	2,076	2,161
Lightship stations	...	1	.	1	46	45
Gas buoys	105	52	53	....	464	517
Gas buoys, with whistles and bells	34	8	26	....	287	313
Minor lights	218	230	..	12	3,360	3,348
Float lights	10	14	..	4	197	193
Total lighted aids	492	345	147	....	6,430	6,577
Fog signals:						
Radio-beacons	11	...	11	....	26	37
Sound fog signals (air)	8	11	..	3	552	549
Submarine fog signals	..	9	..	9	47	38
Gas buoys, with whistles and bells	34	8	26	....	287	313
Whistling buoys, unlighted	3	3	..	....	81	81
Bell buoys, unlighted	10	9	1	....	246	247
Total fog signals	66	40	26	....	1,239	1,265
Unlighted aids:						
Buoys	305	207	98	....	7,523	7,621
Day beacons	144	116	28	....	3,185	3,213
Total	449	323	126	....	10,708	10,834
Grand total [a]	973	700	273	....	18,090	18,363
Aids to air navigation	...	...	...	....	.....	[b] 755

[a] Gas buoys with whistles and bells are counted only once in the grand total.
[b] Not included in further statistics.

LIGHTNING PREVENTION. See Physics.

LIGHTSHIPS. See Lighthouses.

LIME. The lime sold by producers in the United States in 1927 amounted to 4,337,000 short tons, valued at $38,210,000, according to estimates furnished by lime manufacturers to the United States Bureau of Mines, Department of Commerce. This is a decrease of 5 per cent in quantity and 8 per cent in value as compared with sales in 1926, which amounted to 4,560,398 tons valued at $41,566,452. The sales of hydrated lime, which are included in the 1927 figures, amounted to 1,562,000 tons, valued at $14,300,000, a decrease of 3 per cent in quantity and 6 per cent in value, from 1926 when the amount was 1,606,811 tons. The average unit value of all lime showed a decrease from $9.11 a ton in 1926 to $8.81 in 1927, and that of hydrated lime a decrease from $9.45 a ton in 1926 to $9.15 in 1927.

The conditions in the lime industry during 1927 were reported as unsettled and unsatisfactory, especially for the last six months of the year. Demand for building, chemical, and agricultural lime was irregular, and although in general it was reported as less or the same as in 1926, there were many reports of good or increased demand. Ohio, the leading State, showed a decrease of 7 per cent in total quantity of sales (978,000 tons) and 8 per cent in sales of hydrated lime (690,000 tons) from 1926 when the total was 1,056,589 tons and the hydrated lime 752,764 tons. Pennsylvania, which ranked second, showed a decrease of 2 per cent in total sales, 780,000 tons as against 794,196 in 1926. Of the 23 States in which more than 25,000 tons were sold, only 8 showed increased sales. Sales of lime for building in 1927 were estimated at 2,200,000 tons; for chemical uses, 1,847,000 tons; and for agriculture, 290,000 tons.

LINDBERGH. Colonel Charles A., American Aviator. See Aëronautics.

LINES, The Rt. Rev. Edwin Stevens. American clergyman, Protestant Episcopal Bishop of the diocese of Newark, N. J., died at Newark, October 25. He was born at Naugatuck, Conn., Nov. 23, 1915, and, working in a factory to obtain means to acquire an education, entered Yale and graduated in 1872. He graduated at the Berkeley Divinity School in 1874, and from that year until 1879 was rector of Christ Church, West Haven, Conn. From 1879 to 1903 he was rector of St. Paul's Church, New Haven, Conn., and in the latter year became bishop of Newark. He held many high offices in the Protestant Episcopal Church and was a member of important boards and committees, including those having charge of foreign missions, religious education and social service. Yale, Rutgers and Princeton Universities conferred the honorary degree of D.D. on him.

LINGUISTICS. See Anthropology.

LINSEED OIL. See Flax.

LIONS CLUBS, International Association of. An organization of business men's clubs united in one association for the purpose of promoting good government and good citizenship, encouraging efficiency, and promoting high ethical standards in business and in the professions. In 1917 the Business Circle of Chicago issued a call to approximately 150 business organizations, inviting them to send representatives to a meeting in Chicago on June 7. More than 20 delegates, representing 50 clubs, attended this meeting and voted to form the Association of Lions Clubs, with the understanding that each club was to retain its own name. Additional Lions Clubs have been organized by choosing one man from each business or profession in the community.

At the 1927 convention, held June 15–18 at Miami, Fla., 1185 clubs, with a total membership of 52,758, were reported in the association. The officers for 1927–28 elected at this meeting were: President, Irving L. Camp, U. S. National Bank Building, Johnstown, Pa.; immediate past president, William A. Westfall, Mason City, Ia.; vice presidents, Ben A. Ruffin, Richmond, Va., Ray L. Riley, Sacramento, Cal., and Earle W. Hodges, New York City. It was decided to hold the 1928 convention at Des Moines, Ia. *The Lion* is the official organ of the Association. The international headquarters are in the McCormick Building, 332 South Michigan Avenue, Chicago, Illinois.

LIPSIUS, Marie. German writer on music, died at Leipzig, in February. She was born at Leipzig, Dec. 30, 1837. As a member of Liszt's circle at Weimar she became personally acquainted with the foremost musicians of the period. All her books were published under the pseudonym "La Mara." Her most famous work is *Musikalische Studienköpfe* (5 vols., 1873–80), a collection of authoritative sketches of contemporary composers. She also edited much of the correspondence of Wagner, Liszt and Berlioz. In 1917 appeared her autobiography, *Durch Musik und Leben im Dienste des Ideals* (2 vols.)

LITERATURE, English and American. That many people, in America at least, would like to read but do not know what to read was proved by the development during 1927 of the Book-of-the-Month Club and the Literary Guild, whose object was to sell books by persuading their clients that they were reading the right ones. Each had a board of more or less distinguished literary people who chose monthly a book which was sent to subscribers with the assurance that it was important. The Literary Guild professed to sell its books at less than the bookstore prices, and therefore met with opposition from both bookstores and publishers. The Book-of-the-Month Club, which distributed its recommended books at the regular price, was first in the field and in 1927 had won more subscribers. But both together had a membership approaching 100,000. Their growth and activity undoubtedly constitute the event of the year in the American publishing world, for the choice of a book by either board puts it in the best seller class immediately. The books recommended have usually deserved the wide reading such choice gives them. It is probably true that these organizations have won for the publishers customers who without them would buy books less often and less wisely.

The year was also noteworthy for the prizes offered and awarded by publishers. Prizes offered by individuals or periodicals have for a long time been used to liven and enrich the somewhat moribund endeavor in poetry, but only lately have publishers sought manuscripts by offering prizes. Fiction, of course, is most often desired, but prizes are also offered for history and biography. The fiction prizes are sometimes as much as $25,000 when the offer is made by a publisher in combination with a magazine and a motion-picture company. Sometimes the prize-winning author gets royalties in addition, sometimes not. Apparently the publishers hoped that the publicity attaching to the award of the prize, as well as the rights obtained to non-prize-winning manuscripts, would bring the money back.

Fiction. There was in the air a feeling of dissatisfaction with the state of fiction. Though it is assiduously cultivated, though people read it avidly, one hears too often of critical discontent. The new devices, such as the "stream of consciousness," prove barren, seem too easy for the writer and too hard for the reader. The old conventional realism no longer gives delight. Contemporary taste seems to be demanding novels of bright and polished surfaces, novels of detachment, in which both the fact and the philosophy are rather implied than expressed. Such novels as Thornton Wilder's *The Bridge of San Luis Rey*, or Eleanor Carroll Chilton's *Shadows Waiting*, showed the sort of thing which won critical acclaim during 1927. Both were primarily novels of imagination, not fantasy indeed, but certainly Miss Chilton's book, and Rosamond Lehmann's *Dusty Answer*, a sweet story about nasty people, were the most highly regarded first novels of the year. The latter was a best seller, as was John Erskine's *Adam and Eve*, in his by now well-known and plotless dialogue form, which nevertheless seems to stimulate and amuse. His book, with James Branch Cabell's *Something about Eve*, a fantasy, left the lady with a sadly changed reputation.

Working again in his old vein of satirical realism, Sinclair Lewis published *Elmer Gantry*, about an incredible minister, a book which makes all Lewis's previous work suspect. A typical H. G. Wells novel was *Meanwhile*, concerned principally with the British general strike of 1926, but considering also a better organization of the universe. Virginia Woolf developed her advanced technique still further in *To the Lighthouse*, and Dorothy M. Richardson, in *Oberland*, gave Miriam Henderson life for two more weeks in which nothing much happened. These two remained the best, if not the only, practitioners of what once seemed the "new" English novel.

C. E. Montague imagined a bitter and tragic war in *Right Off the Map*. H. M. Tomlinson's *Gallions Reach* was a novel primarily of beautifully done scene. *Death Comes to the Archbishop*, by Willa Cather, showed her turning to the history of the American Southwest for material, with somewhat disappointing results. Three prize novels of the year were: *The Grandmothers*, by Glenway Wescott; *Jalna*, by Mazo de la Roche; and *Rebellion*, by Mateel Howe Farnham, all concerned primarily with family life. Is there a formula for prize-winning?

Striking novels of fantasy were: *Mr. Fortune's Maggot*, by Sylvia Townsend Warner; *The Love Child*, by Edith Olivier; *The Blessing of Pan*, by Lord Dunsany; *The Midnight Folk*, by John Masefield; *The House Without Windows*, by Barbara Newhall Follett; *Witch Wood*, by John Buchan; *The Return of Don Quixote*, by G. K. Chesterton. Among historical novels there were: *Forever Free*, by Honoré Willsie Morrow, about Lincoln; *The Immortal Marriage*, by Gertrude Atherton, about Pericles and Aspasia; *Brother John*, by Vida D. Scudder, and *Brother Saul*, by Donn Byrne, both based on the Bible.

Of the type best classified as realistic were: Elizabeth Madox Roberts' *My Heart and My Flesh*, a melodrama done with splendid restraint; Beatrice Kean Seymour's *Three Wives*, showing that marriage is not paradise; Jim Tully's rough, tough *Circus Parade*; Anne Douglas Sedgwick's *The Old Countess*, American ways of life versus French; Upton Sinclair's *Oil;* Louis Bromfield's *A Good Woman;* Charles G. Norris' *Zelda Marsh;* Dan Totheroh's *Wild Orchard;* St. John Ervine's *The Wayward Man;* Floyd Dell's *An Unmarried Father;* Anne Parrish's *To-morrow Morning;* Ernest Pascal's *The Marriage Bed;* Evelyn Scott's *Migrations;* James Stevens' *Mattock;* Ben Ames Williams' *Splendor* and *Immortal Longings*. Novels aiming at pure entertainment were: *The Vanguard*,

LOUIS BROMFIELD

ROSAMOND LEHMANN

EMIL LUDWIG

WARWICK DEEPING

FOUR AUTHORS PROMINENT IN 1927

by Arnold Bennett; *The Honorable Picnic*, by Thomas Raucat; *The Kingdom of Theophilus*, by William J. Locke; *Strange Woman*, by Elmer Davis; and *I Think I Remember*, by Cleone Knox. Among the many mystery stories were: *The Dark Chamber*, by Leonard Cline; *The Haunted House*, by Hilaire Belloc; and *The Murder at Crome House*, by G. D. H. and M. Cole.

Other novels deserving mention were: Edith Wharton's *Twilight Sleep;* Margaret Kennedy's *Red Sky at Morning;* Warwick Deeping's *Doomsday* and *Kitty;* Francis Brett Young's *Love is Enough;* James Boyd's *Marching On;* Michael Arlen's *Young Men in Love;* May Sinclair's *The Allinghams* and *The History of Anthony Waring;* Storm Jameson's *The Lovely Ship;* Dale Collins' *The Sentimentalists;* Frederick Hazlitt Brennan's *God Got One Vote;* Harold Bell Wright's *God and the Groceryman;* Louis Golding's *The Miracle Boy;* Martha Ostenso's *The Mad Carews;* Hugh Walpole's *Jeremy at Crale;* Robert Nathan's *The Woodcutter's House;* Mathilde Eiker's *Over the Boat-Side;* G. B. Stern's *The Dark Gentleman;* Struthers Burt's *The Delectable Mountains;* Allen Updegraff's *Whatever We Do;* Felix Riesenberg's *East Side, West Side;* Percy Marks' *Lord of Himself;* Julia Peterkin's *Black April;* Nancy Hoyt's *Unkind Star;* Ludwig Lewisohn's *Roman Summer;* and Ernest Poole's *Silent Storms.*

The volume of short stories which attracted most attention was Ernest Hemingway's *Men Without Women*, crisp studies of hard-boiled people. There were also among the short story books: Theodore Dreiser's *Chains;* Edna Ferber's *Mother Knows Best;* Christopher Morley's *The Arrow* and *Pleased to Meet You;* A. E. Coppard's *The Field of Mustard;* Captain John W. Thomason's *Red Pants;* Leonard Nason's *Three Lights from a Match;* William Gerhardi's *Pretty Creatures;* Thyra Samter Winslow's *People Round the Corner;* R. B. Cunninghame Graham's *Redeemed;* G. B. Stern's *Jack A'Manory;* Wyndham Lewis' *The Wild Body;* Arnold Bennett's *The Woman Who Stole Everything;* Laurence Housman's *Ironical Tales;* Mary Borden's *Four o'Clock;* Basil King's *The Spreading Dawn.*

There were the usual number of fascinating translations, noteworthy among which were: *Giants in the Earth*, translated by the author, O. E. Rölvaag, who lives in America but writes in Norwegian; *Avarice House*, by Julian Greene, an American who writes in French; André Gide's *The Counterfeiters*, by Dorothy Bussy; the third volume of Sigrid Undset's trilogy, *The Cross;* Romain Rolland's *Mother and Son;* Arthur Schnitzler's *Rhapsody and Daybreak*, by W. A. Drake; Maxim Gorki's *Decadence;* Knut Hamsun's *Mysteries;* Karel Capek's *The Absolute at Large;* Thomas Mann's *The Magic Mountain*, by H. T. Lowe-Porter; Franz Werfel's *The Man Who Conquered Death*, by William A. Drake and Clifton P. Fadiman; Lady Murasaki's *A Wreath of Clouds*, the third volume of the *Tale of Genji*, by Arthur Waley; Jacob Wassermann's *The Triumph of Youth;* André Maurois' *Bernard Quesnay*, by Brian Downs; and Paul Morand's short stories, *Nothing But the Earth* and *East India and Company.*

POETRY. The most striking new poet to appear during 1927 was Hart Crane, whose *White Buildings*, though a difficult and highly individual collection of lyrics, yet contained much startling and fresh beauty. Edwin Arlington Robinson's *Tristram* subtilized the old love story, to many people's delight. Humbert Wolfe's *Requiem* showed this important poet widening and deepening his art. Other important books of poetry were: John Crowe Ransom's *Two Gentlemen in Bonds;* Edith Sitwell's *Rustic Elegies;* H. Phelps Putnam's *Trino;* Sacheverell Sitwell's *The Cyder Feast;* Robinson Jeffers' *The Women at Point Sur;* Osbert Sitwell's *England Reclaimed;* Walter de la Mare's *Stuff and Nonsense;* Lizette Woodworth Reese's *Little Henrietta;* F. R. Higgins' *The Dark Breed;* Amy Lowell's *Ballads for Sale;* Siegfried Sassoon's *Satirical Poems;* Maxwell Bodenheim's *Returning to Emotion;* Marguerite Wilkinson's *The Radiant Tree;* Donald Davison's *The Tall Men;* Beatrice Ravenel's *The Arrow of Lightning;* Leonard Bacon's *Guinea Fowl and Other Poultry;* Jean Starr Untermeyer's *Steep Ascent;* Christopher Morley's *Translations from the Chinese;* Evan Morgan's *The Eel and Other Poems.* Some distinctively negro contributions were *Copper Sun*, by Countee Cullen; *Fine Clothes to the Jew*, by Langston Hughes; and *God's Trombones*, sermons in verse by James Weldon Johnson. There were many collections of American folk-songs, such as: *The American Songbag*, by Carl Sandburg; *Frontier Ballads: Songs from Lawless Lands*, by Charles J. Finger; *A Book of Chanties*, by C. Fox Smith. Other anthologies were: *The Third Book of Modern Verse*, by Jessie B. Rittenhouse; *Miscellany of American Poetry, 1927;* and *The Oxford Book of 18th Century Verse*, by David Nichol Smith.

DRAMA. Eugene O'Neill, now one of the commanding figures in the drama of the world, published two new and unperformed plays during 1927. One, *Marco Millions*, is a satiric comedy, a new mode for O'Neill. The other, *Lazarus Laughed*, is designed for "the imaginative theatre" rather than for actual production. It requires huge choruses, numberless masks, multitudinous scenes, and leading actors of tremendous powers. The raised Lazarus preaches joy in living, but is burned on account of the terror of those who love death. John Masefield, like so many other authors, turned to Malory for material and brought out *Tristan and Isolt.* Edna St. Vincent Millay's *The King's Henchman* was a sensation as the libretto of Deems Taylor's opera. Other important plays were: W. Somerset Maugham's *The Constant Wife* and *The Letter;* Arthur Goodrich and Rose A. Palmer's *Caponsacchi;* Maurine Watkins' *Chicago;* George S. Brooks and Walter B. Lister's *Spread Eagle;* Clemence Dane's *Mariners;* Paul Green's *The Field God* and *In Abraham's Bosom;* Philip Dunning and George Abbott's *Broadway;* Maxwell Anderson's *Saturday's Children;* S. N. Behrman's *The Second Man;* Sidney Howard's *The Silver Cord;* Stephen Phillips' *Harold;* Paul Sifton's *The Belt;* E. E. Cummings' *Him;* and Ashley Dukes' *The Song of Drums.* Among collections were: *Plays of Negro Life*, by Alain Locke and Montgomery Gregory; and *More One Act Plays by Modern Authors*, by Helen Louise Cohen.

ESSAYS. Among the more noteworthy volumes in this catch-all classification were: *Castles in Spain*, by John Galsworthy; *Essays Old and New*, and *Proper Studies*, by Aldous Huxley; *Sibylla, or the Revival of Prophecy*, by C. A. Mace; *Character and the Conduct of Life*, by William McDougall; *The Next Chapter: the War* *against the Moon*, by André Maurois; *Reliquiae*, by A. D. Godley; and *Lay Sermons*, by Margot Asquith, which are more or less philosophical; *Variety*, by Paul Valery; *Leaves and Fruit*, by Sir Edmund Gosse; *Essays*, by Leonard Woolf; *Books in Bottles*, by W. G. Clifford; *Wild Goslings*, by William Rose Benet; *Tokefield Papers*, by Frank Swinnerton; *Show Window*, by Elmer Davis; which are more or less literary; *The Almost Perfect State*, by Don Marquis; *The Early Worm*, by Robert Benchley; *The Life and Times of Martha Hepplethwaite*, by Frank Sullivan; which are more or less humorous; *Some People*, by Harold Nicolson; *Eight o'clock Chapel*, by C. H. Patton and W. T. Field; *Morrow's Almanac for 1928*, edited by Burton Rascoe; and *Guides, Philosophers, and Friends*, by Charles F. Thwing; these mainly biographical. Others, quite miscellaneous, were: H. L. Mencken's *Prejudices, Sixth Series;* George Jean Nathan's *Land of the Pilgrim's Pride;* G. B. Stern's *Bouquet;* D. H. Lawrence's *Mornings in Mexico;* Odell Shepard's *The Harvest of a Quiet Eye;* W. C. Brownell's *Democratic Distinction in America;* Alfred Noyes' *New Essays and American Impressions.*

Mention must also be made somewhere of *The American Caravan, 1927*, edited by Van Wyck Brooks, Alfred Kreymborg, Lewis Mumford, and Paul Rosenfeld, who claim that this annual-to-be is necessary to provide outlet for the younger writers whom the mean old editors won't listen to. It contained poems, plays, short stories, novelettes, and articles, most of which many a magazine would have been glad to pay for.

Criticism and the History of Literature. 1927 was a notable year in this field. Among general works were: Elizabeth Shipley Sargent's *Fire Under the Andes:* Van Wyck Brooks' *Emerson and Others;* Edwin Avery Park's *The Backgrounds for a New Age;* Stuart Sherman's *The Main Stream;* Raymond Pearl's *To Begin With;* John Rodker's *The Future of Futurism;* George Philip Krapp's *The Knowledge of English;* John Drinkwater's *A Book for Bookmen;* Mary Cass Canfield's *Grotesques;* Percy Holmes Boynton's *More Contemporary Americans;* Upton Sinclair's *Money Writes;* Ernest Boyd's *Literary Blasphemies.*

About poets and poetry: John Livingston Lowes' remarkable detective work on the sources of Coleridge, *The Road to Xanadu;* Harriet Monroe's *Poets and their Art;* Gilbert Murray's *The Classical Tradition in Poetry;* Joseph Auslander and Frank Ernest Hill's *The Winged Horse.* About Shakespeare: *The Lion and the Fox; the Rôle of Hero in the Plays of Shakespeare*, by Wyndham Lewis; *Shakespeare and Demi-Science*, by Felix E. Schelling; *Shakespeare Studies*, by Elmer Edgar Stoll.

About drama and dramatists: *The Theatre in Life*, by Nicolas Evreinoff; *Modern English Playwrights*, by John W. Cunliffe; *An Outline of Contemporary Drama*, by Thomas H. Dickinson; *A Short History of the Drama*, by Martha F. Bellinger; *A History of Late Eighteenth Century Drama*, by Allardyce Nicoll; *Annals of the New York Stage*, by George C. D. Odell; *A History of the American Drama*, by Authur Hobson Quinn; *Gilbert and Sullivan*, by A. H. Godwin; *Studies in the Contemporary Theatre*, by John Palmer; *The House of Satan*, by George Jean Nathan. About novels and novelists: Eino Railo's *The Haunted Castle: a Study of the Elements of English Romanticism;* E. M. Forster's *Aspects of the Novel;* G. K. Chesterton's *Robert Louis Stevenson.* Also James C. Johnston's *Biography: the Literature of Personality.*

Biography and Autobiography. The "new" biography is definitely a form of entertainment, and biographical works during 1927 provided lots of it. Picturesque and odd Americans were much in vogue, as: *Calamity Jane and the Lady Wildcats*, by Duncan Aikman; *Annie Oakley*, by Courtney Ryley Cooper; *Barnum's Own Story*, by Waldo R. Browne; *Anthony Comstock: Roundsman of the Lord*, by Heywood Broun and Margaret Lynch; *A Methodist Saint: the Life of Bishop Asbury*, by Herbert Asbury; *John Paul Jones: Man of Action*, by Phillips Russell; *Navigator: the Story of Nathaniel Bowditch of Salem*, by Alfred Stanford; *Caspar Collins*, by Agnes Wright Spring; *Riata and Spurs*, by Charles A. Siringo; *"Boss" Tweed*, by Denis Tilden Lynch.

American political figures: Volumes I and II of *Woodrow Wilson: Life and Letters*, by Ray Stannard Baker; *Andrew Jackson*, by Gerald W. Johnson; *Alfred E. Smith*, by Henry F. Pringle; *Men of Destiny*, by Walter Lippman, which dealt with literary men also; *The President's Daughter*, by Nan Britten, scandalous matter; *Washington*, by Joseph Dillaway Sawyer; *Col. Bob Ingersoll*, by Cameron Keyes; *Uncle Joe Cannon: Reminiscences of a Pioneer American*, as told to L. White Busbey.

American literary persons: *The Rebellious Puritan: Portrait of Mr. Hawthorne*, by Lloyd Morris; *Nathaniel Hawthorne*, by Herbert Gorman; *The Heart of Thoreau's Journals*, edited by Odell Shepard; *Henry Thoreau, the Cosmic Yankee*, by J. Brooks Atkinson; *The Father of Little Women*, by Honoré Willsie Morrow; *Epoch: the Life of Steele Mackaye*, by Percy Mackaye; *The Road to the Temple*, by Susan Glaspell, about George Cram Cook; *The Locomotive God*, by William Ellery Leonard, and *Transition*, by Will Durant, autobiographies; and *The Story of a Wonder Man*, by Ring Lardner, autobiography with a difference. Other Americans: Carl Christian Jensen's *An American Saga;* Paxton Hibben's *Henry Ward Beecher;* Evan Charteris' *John Singer Sargent;* Harry Kemp's *More Miles.*

English literary men and women: *The Journals of Katharine Mansfield*, edited by J. Middleton Murry; *Joseph Conrad: Life and Letters*, by G. Jean-Aubry; *Carlyle at His Zenith, 1848–1853*, by David Alec Wilson; *Thomas Carlyle*, by Mary Agnes Hamilton; *Anthony Trollope*, by Michael Sadleir; *George Eliot and Her Times*, by Elizabeth S. Haldane; *The Letters of George Gissing*, collected by Algernon and Ellen Gissing; *Thomas Love Peacock*, by J. B. Priestley; *Horace Walpole*, by Dorothy Margaret Stuart; *Dorothy and William Wordsworth*, by C. M. MacLean; *O Rare Ben Jonson*, by Byron Steel. English political figures: *Disraeli*, by André Maurois; *Disraeli*, by D. L. Murray; *Rhodes*, by J. G. MacDonald; *King Edward VII, 1901–1910*, by Sir Sidney Lee; *James Bryce*, by H. A. L. Fisher. Other English people: the year's favorite, *Charles Darwin*, by Henshaw Ward, *The Life of Darwin*, by Leonard Huxley, and *The Evolution of Charles Darwin*, by George A. Dorsey; the somewhat incredible *Trader Horn*, by Alfred Aloysius Horn; *Viscount Leverhulme*, by his son; *Field Marshal Sir Henry Wilson's Life and Diaries*, edited by Sir C. E. Callwell; *Letters of Gertrude Bell of Arabia*, edited by Lady Bell.

Continentals and others: *Bismarck, Napoleon*, and *Genius and Character*, by Emil Ludwig; *Memoirs of Catherine the Great of Russia*, translated by Katherine Anthony; *That Man Heine*, by Lewis Browne and Elsa Wiehl; *Balzac*, by René Benjamin; *The Romance of Villon*, by Francis Carco; *Flaubert's Youth*, by Piaget Shanks; *Marcel Proust*, by Leon Pierre-Quint; *Jean-Paul Marat: a Study in Radicalism*, by Louis R. Gottschalk; *Pierre Loti: the Romance of a Great Writer*, by E. D. D'Auvergne; *The Life and Letters of Anton Tchekhov*, translated and edited by S. S. Koteliansky and Philip Tomlinson; *Cavour*, by Maurice Paleologue; *Genghis Kahn: the Emperor of All Men*, by Harold Lamb; *Those Quarrelsome Bonapartes*, by Robert Gordon Anderson; *A Greater than Napoleon: Scipio Africanus*, by Capt. B. H. Liddell Hart; *Five Years in Turkey*, by Liman von Sanders; *Eleanora Dusé*, by Arthur Symons; *Pages from My Life*, by Feodor Ivanovitch Chaliapin; *Polonaise*, by Guy de Portales, about Chopin; *The Prodigious Lover*, by Louis Barthou, about Wagner; *Hans Christian Andersen: the True Story of My Life*, translated by Mary Howitt.

THE FINE ARTS. There was the usual press of books concerned with architecture, such as: *Towards a New Architecture*, by Le Corbusier; *The Story of Architecture in America*, by Thomas E. Tallmadge; *The A B C of Architecture*, by Matlock Price; *The Architect in History*, by Martin S. Briggs; *Form in Gothic*, by Wilhelm Worringer; *The Development of the Theatre*, by Allardyce Nicoll; *Architectural Design in Concrete*, by T. P. Bennet; *Balbus, or the Future of Architecture*, by Christian Barman; *Charleston, South Carolina*, about the old houses there, by Albert Simons and Samuel Lapham, Jr.; *The Glory of New York*, by Joseph Pennell.

These considered painting: Bernard Berenson's *Three Essays in Method;* Frank Jewett Mather, Jr.'s *Modern Painting;* Newton Wethered's *From Giotto to John;* Andre Blum and R. R. Tatlock's *A Short History of Art;* R. H. Wilenski's *The Modern Movement in Art;* Clive Bell's *Landmarks in Nineteenth Century Painting;* Roger Fry's *Cézanne;* Julius Meier-Greefe's *Cézanne;* Ambrose Vollard's *Degas;* Richard Offner's *Studies in Florentine Painting*. National art was dealt with in: R. L. Hobson's *Chinese Art;* Louis V. Ledoux's *The Art of Japan;* Ananda K. Coomaraswamy's *History of Indian and Indionesian Art*. John C. Van Dyke revised long-standing judgments in *The Rembrandt Drawings and Etchings*.

RELIGION. Among the noteworthy works in this field were: *The Church in the World*, by William Ralph Inge; *Spiritual Values and Eternal Life*, by Harry Emerson Fosdick; *The Impatience of a Parson*, by H. R. L. Sheppard; *The Creator Spirit*, by Charles E. Raven; *Should Such a Faith Offend?* by Ernest William Barnes; *The People and the Book*, edited by Arthur S. Peake; *Changing Backgrounds in Religion and Ethics*, by H. Wildon Carr; *English Modernism*, by H. D. A. Major; *Protestant Europe: Its Crisis and Outlook*, by Adolf Keller and George Stewart; *What Can a Man Believe?* by Bruce Barton; *Evolution in Science and Religion*, by Robert Andrews Millikan; *Jesus: a New Biography*, by Shirley Jackson Case; *Forerunners of St. Francis*, by Ellen Short Davison; *The Catholic Church and its Reactions with Science*, by Bertram C. A. Windle; *The Catholic Church and Philosophy*, by Vincent McNab; *Paul the Jew*, by the author of *By an Unknown Disciple*.

SOCIOLOGY AND EDUCATION. Important books in sociology included: Pitirim Sorokin's *Social Mobility;* Edward J. Urwick's *The Social Good;* Ernest R. Groves' *Social Problems of the Family;* Frank H. Hankins' *The Racial Basis of Civilization: a Critique of the Nordic Doctrine;* John Langdon-Davies' *A Short History of Woman;* Count Hermann Keyserling's *The Book of Marriage;* Robert Briffault's *The Mothers;* Jacques Fischer's *Love and Morality;* Anthony M. Ludovici's *Man: an Indictment;* Charles A. Wood's *The Myth of the Individual;* Charles Hose's *Natural Man: a Record from Borneo;* Langdon Mitchell's *Understanding America;* Philip Guedalla's *Conquistador;* Herman Feldman's *Prohibition;* Clarence Darrow and Victor S. Yarros' *The Prohibition Mania;* Ben B. Lindsey and Wainwright Evans' *The Companionate Marriage;* Silas Bent's *Ballyhoo: the Voice of the Press;* Frederick M. Thrasher's *The Gang;* Martha Bensley Bruere's *Does Prohibition Work?* Montague Summers' *The Geography of Witchcraft;* Tsi C. Wang's *The Youth Movement in China.*

EDUCATION. Among the books on education were: *Education for a Changing Civilization*, by William Heard Kilpatrick; *Cultural Evolution*, by Charles A. Ellwood; *Educational Psychology*, by Edward Herbert Cameron; *Adventuring with 12-year-olds*, by Leila Scott; *The Junior College*, edited by William M. Proctor; *College: What's the Use?* by Herbert E. Hawkes; *The Changing College*, by Ernest Hatch Wilkins; *The Idea of a College*, by Chauncey Brewster Tinker.

POLITICS AND ECONOMICS. Among the general works in the rich and interesting field of politics were: *The Public Mind: Its Disorders, Its Exploitation*, by Norman Angell; *The Public and Its Problems*, by John Dewey; *The Origin of the State*, by R. W. Lowie; *The Natural History of Revolution*, by Lyford P. Edwards; *Democracy Under Revision*, by H. G. Wells; *Constructive Citizenship*, by L. P. Jacks; *Bolshevism, Fascism, and Democracy*, by Francesco Nitti; *Where Freedom Falters*, by the author of *Pomp of Power; Navies and Nations*, by Hector C. Bywater; *The Modern Development of City Government*, by Ernest S. Griffith.

Books which approached their problems historically included: Archibald Cary Coolidge's *Ten Years of War and Peace;* Frank H. Simonds' *How Europe Made Peace without America; The Problems of Peace; A Frenchman Looks at the Peace*, by Alcide Ebray, translated by E. W. Dickes; *The European Situation*, by A. Mendelssohn-Bartholdy; *The Vanished Empire*, by Putnam Weale; *The Political Ideas of the Greeks*, by John L. Myers. The political problems of single nations or groups of nations were dealt with in: Katherine Mayo's searching *Mother India;* Alleyne Ireland's *The New Korea;* Arnold J. Toynbee and Kenneth P. Kirkwood's *Turkey;* Arnold J. Toynbee's *The Islamic World Since the Peace Settlement;* Nathaniel Peffer's *The White Man's Dilemma;* Upton Close's *The Revolt of Asia;* Sarah Gertrude Millin's *The South Africans;* Sisley Huddleston's *France;* René Fulop-Miller's *The Mind and Face of Bolshevism,* translated by F. S. Flint and D. F. Tait.

Concerned particularly with America were: André Siegfried's *America Comes of Age;* André Tardieu's *France and America;* Edward McChesney Sait's *American Parties and Elections;* John Dickinson's *Administrative Justice and the Supremacy of Law in the United States;* William English Walling's *American Labor and American Democracy;* James M. Beck's *The Vanishing Rights of the States.*

E. R. A. Seligman considered a moot question in *The Economics of Installment Selling,* with conclusions favorable to that business method; *Your Money's Worth,* by Stuart Chase and F. J. Schlink, exposed many malpractices in modern business. Other books of economics were William Trufant Foster and Waddill Catchings' *Business without a Buyer;* F. Creedy's *Human Nature in Business;* Harry Jerome's *Migration and Business Cycles;* Rexford Guy Tugwell's *Industry's Coming of Age;* Sir Alfred Mond's *Industry and Politics;* Carl Snyder's *Business Cycles and Business Measurements;* Harold Glenn Moulton and Leo Pasvolsky's *World War Debt Settlements;* Constance McGuire's *Italy's International Economic Situation;* George Unwin's *Studies in Economic History;* J. H. Clapham's *An Economic History of Modern Britain;* Mandell M. Bober's *Karl Marx's Interpretation of History;* Henry F. Grady's *British War Finance;* Russell C. Engberg's *Industrial Prosperity and the Farmer; Farm Income and Farm Life;* G. K. Chesterton's *The Outline of Sanity.*

HISTORY. Probably the year's most picturesque event in the field of history was the publication of T. E. Lawrence's *The Seven Pillars of Wisdom,* privately, and its abridgment, *Revolt in the Desert,* publicly. These were accompanied by additional details in *Lawrence and the Arabs,* by Robert Graves. Two books revivified American history: *The Rise of American Civilization,* by Charles A. Beard and Mary R. Beard, and *Main Currents in American Thought,* by Vernon Louis Parrington, which seemed to approach their material from new angles.

Other interesting books on America were: *The Emergence of Modern America,* by Allan Nevins; *Provincial Society,* by James Truslow Adams; *America,* by Hendrik Willem Van Loon; volume II, *America Finding Herself,* of *Our Times: the United States 1900–1925,* by Mark Sullivan; seven volumes of the pictorial history, *The Pageant of America,* edited by Ralph Henry Gabriel and others; *The Oxford History of the United States,* by S. E. Morison; *Roosevelt and the Caribbean,* by Howard C. Hill; *Tombstone,* by Walter Noble Burns; *The American Secretaries of State and Their Diplomacy,* edited by Samuel Flagg Bemis; *Marching with Sherman: Passages from the Letters and Campaign Diaries of Henry Hitchcock,* edited by M. A. DeWolfe Howe.

Historical material on the World War still accumulated in: Volumes I and II of *British Documents on the Origins of the War, 1898–1914,* edited by G. P. Gooch and Harold V. Temperley, with Mr. Gooch's *Recent Revelations of European Diplomacy; The World Crisis, 1916–1918,* by Winston Churchill; *Five Weeks,* by Jonathan French Scott. Other books of history were: *The Present Position of History,* by George Macaulay Trevelyan; *The Catastrophe,* by Alexander F. Kerensky; *The Rise of the German Republic,* by H. G. Daniels; *The Making of a State,* by Thomas Garigue Masaryk; *Twentieth Century Europe,* by Preston Slosson; *The Inquisition,* by A. L. Maycock; *Life in Regency and Early Victorian Times,* by E. Beresford Chancellor; *History of England, 1688–1815,* by *E. M. Wrong; Byzantine Portraits,* by Charles Diehl, translated by Harold Belle; *India's Past,* by A. A. Macdonell; *A History of the Ancient World,* by Michael Rostovtzeff; *Victor Emmanuel and the Union of Italy,* by C. S. Forester; volume V, *Athens,* and volume VI, *Macedon,* of the *Cambridge Ancient History,* edited by J. B. Burry, S. A. Cook, and F. E. Adcock; *An Outline History of Japan,* by Herbert H. Gowen.

SCIENCE. Popular science fills every year a bigger place in the book-lists, especially with the growing tendency to question its values, which comes not only from the religious point of view. Such books as C. E. Ayres' *Science: the False Messiah,* and Arthur Lynch's *Science: Leading and Misleading,* represented this tendency. Other leading works: Biological: Julian S. Huxley's *The Stream of Life,* and *Essays in Popular Science;* Albert E. Wiggam's *The Next Age of Man;* Logan Clendening's *The Human Body;* G. K. Chesterton's *Eugenics and Other Evils;* William S. Sadler's *The Truth about Heredity;* Michael F. Guyer's *Being Well Born;* Griffith Taylor's *Environment and Race;* Maurice Maeterlinck's *The Life of the White Ant;* geological: Allan L. Benson's *The Story of Geology;* Ellsworth Huntington's *The Human Habitat;* Charles Schukert and Clara Le Vene's *The Earth and its Rhythms;* Arthur Holmes' *The Age of the Earth;* physical: P. W. Bridgman's *The Logic of Modern Physics;* Benjamin Harrow's *The Romance of the Atom; What is the Atom?* by E. N. da C. Andrade; *Archimedes: or the Future of Physics,* by L. L. Whyte; *The New Reformation,* by Michael I. Pupin; chemical; *The Romance of Chemistry,* by William Foster; astronomical: *Modern Astronomy,* by Hector MacPherson; *The New Universe,* by Baker Bronwell; *Astronomy,* by Henry Norris Russell; general: *Creative Knowledge,* by Sir William *Bragg; Creation,* by Edwin Tenney Brewster; *The Seven Seas of Science,* by Joseph Mayer; *The Science of To-day,* by Sir Oliver Lodge; *From Myth to Reason,* by Woodbridge Riley; *The War on Modern Science,* by Maynard Shipley.

TRAVEL AND THE OUT-OF-DOORS. Since the year's epic journey was Col. Charles A. Lindbergh's flight to Paris, his story of that flight, *We,* must lead the list of travel books. Not the least of his achievements was the publication of the volume so soon after the event. Among the other numerous books in this field were *Adventures in Arabia,* by W. B. Seabrook; *Passenger to Teheran,* by V. Sackville-West; *A Voyage to the South Seas in H. M. S. The Wager, 1740–1741,* by John Bulkeley and John Cummins; *The Himalayan Adventures of Gypsy Davy and Lady Ba; Encounters,* by B. Ifor Evans; *Cannibal Nights,* by Capt. H. E. Raabe; *The Glorious Adventure,* by Richard Halliburton; *By-ways of the Tropic Seas,* by Hermann Norden; *Silver Cities of Yucatan,* by Gregory

Mason; *Jungle Paths and Inca Ruins*, by William Montgomery McGovern; *In Barbary*, by E. Alexander Powell; *In China*, by Abel Bonnard, translated by Veronica Lucas; *The Frantic Atlantic*, by Basil Woon; *In Savage Australia*, by Knut Dahl; *Pheasant Jungles*, by William Beebe; *Mallorca, the Magnificent*, by Nina Larrey Duryea; *River Thames*, by F. V. Morley; *Orient Express*, by John Dos Passos; *What about North Africa?* by Hamish McLaurin; *Across Arctic America*, by Knud Rasmussen; *European Skyways*, by Lowell Thomas; *The Balearics and Their Peoples*, by Frederick Chamberlin; *Father Mississippi*, by Lyle Saxton; *That's New York*, by Morris Markey and Johann Bull; *My Journey to Lhasa*, by Alexandra Daid-Neel; *Camping in the Sahara*, by E. M. Hull; *Runaway Days*, by Samuel Scoville, Jr.; *The Sea: Its History and Romance*, by Frank C. Bowen; *On the Old Trail*, by Morley Roberts; *Canadian Footprints*, by M. O. Hammond; *Manhattan, the Magical Island*, by Ben Judah Lubschez; *Nine Thousand Miles in Eight Weeks*, by Mrs. Victor A. Bruce; *Islands of Queen Wilhelmina*, by Violet Clifton; *Mackenzie and His Voyageurs: By Canoe to the Arctic and the Pacific, 1789–1793*, bv Arthur P. Woollacott; *Suhail*, by Coleridge Kennard; *In the Heart of Spain*, by Thomas Ewing Moore; *To the Mysterious Lorian Swamp*, by Capt. C. Wightwick Haywood; *The Breath of the Desert*, by Ferdinand Ossendowski, translated by Lewis Stanton Palen; *Wayfaring in Africa*, by Daisy M. Chown.

Books relating to out-of-door life included: *Lions in the Path*, by Stewart Edward White; *Tiger, Tiger*, by W. Hogarth Todd; *With a Camera in Tiger-land*, by F. W. Champion; *Down the Fairway*, by Robert T. Jones, Jr., and O. B. Keeler; *Trails Plowed Under*, by Charles M. Russell; *Cow Country*, by Will James; *Touchdown*, as told by Amos Alonzo Stagg to Wesley Winans Stout.

LITHUANIA. One of the new states formed out of the territory of the Russian Empire after the War. Capital, Kovno, although the Lithuanians claim Vilna as the capital of their country.

Area and Population. The eastern boundary of the country was defined in a treaty with Russia, July 12, 1920; on the north the boundaries nearly coincide with the former boundary between Courland and Kovno; on the south they are still undetermined. (See below under *History*.) The area, based on 1914 figures, is 59,633 square miles; population, Jan. 1, 1926, 2,229,876. On Feb. 16, 1923, the Council of Ambassadors transferred the Memel district with a population of 170,000 to Lithuania. Just a month later they gave Vilna to Poland. Lithuania, however, continued to claim this district and to consider Vilna the Lithuanian capital. Important cities are: Kovno, 94,405; Grodno, 61,600; Memel, 36,041; Suvalki, 31,600; and Shavli, 21,878.

Education. In 1925 there were 2089 primary schools with 2882 teachers and 122,592 pupils, and 112 secondary schools with 22,949 pupils. The University of Kovno which was opened in 1922 had, in 1926, 130 professors and teachers and over 3000 students.

Production. Lithuania is an agricultural country and preponderantly rural in character. The resources consist chiefly of agricultural produce and timber. Production in 1925 was as follows in cwts: rye, 13,333,200; wheat, 3,124,800; barley, 4,899,500; oats, 5,692,500; potatoes, 31,622,000; peas, 2,415,500; and flaxseed 798,000. In the same year the country possessed 497,000 horses, 1,339,000 cattle, 1,455,000 sheep, and 1,488,000 pigs. Poultry farming and bee keeping are also important occupations. The forests cover 1,956,000 acres, more than half of which are pines.

Commerce. No later statistics on commerce were available than those for 1925, when the unfavorable balance of trade was $1,140,000, resulting from exports of $22,280,000 and imports of $23,423,000. In 1924 the balance of trade was favorable to Lithuania to the extent of $6,004,980.

Finance. Preliminary statistics indicated that the state budget for 1926 was realized, with a surplus of 7,000,000 litas (one litas is worth $0.10). Revenues collected amounted to 235,160,000 litas as against 241,940,000 litas estimated, and actual expenditures were 228,160,000 litas as against 236,220,000 litas estimated. Actual returns from indirect taxes, totaling 101,350,000 litas, were 6,000,000 litas below estimates, but the returns from other taxes and from State enterprises were above budget estimates. The budget for 1927 was balanced at 229,535,630 litas and was about 50,000,000 litas less than the 1926 budget.

Communications. All railways in Lithuania are owned and operated by the State, and at the close of 1926 comprised 1954 kilometers of line. Until 1918, when Lithuania became independent, they formed a part of the Imperial Russian railway system. Operating revenues amounted to $3,129,305 and operating expenses to $3,341,039. Other revenues were $403,869 and other expenses were $218,614. Rolling stock in operation in 1926 consisted of some 240 locomotives, 443 passenger cars, and 4427 freight cars. The greater part of the rolling stock was received from Soviet Russia and Germany, and much of it was antiquated and in a dilapidated condition. A new railway between Amaliai and Telshy, 56 kilometers long, was constructed during the 1925–26 fiscal period, and several small constructions and rebuilding of bridges were made.

Government. According to the constitution of Aug. 1, 1922, executive power is in the president of the republic who acts through a responsible ministry; and legislative power in a diet, elected by universal, equal, direct, and secret suffrage. President in 1927, M. Smetona; Prime Minister, Professor Valdemaras.

History. The outstanding event of the year as far as Lithuania was concerned was the settlement of the Vilna dispute towards its close. As noted in the preceding Year Book, Lithuania fell under the sway of a dictator near the end of 1926, when Antona Smetona successfully carried out a *coup d'état* in December. The new régime established as a result of this stroke suppressed all opposition and to outward appearances, at least, kept the country under control and at internal peace during the year. The only untoward incident was a revolt on September 10, under the leadership of a Communist general. Arrests and imprisonment for the leaders quickly followed the suppression of the uprising by the government troops and the country was at peace again when the Vilna problem loomed on the horizon.

In the early part of October the relations between Lithuania and Poland were severely strained when Polish authorities arrested several Lithuanians in Vilna and closed many schools in that city because of alleged harsh treatment of Polish subjects at the hands of the Lithuanian government. Premier Valdemaras, the chosen lieutenant of Smetona, pratically took no action in the matter, declaring that the next move was up to Poland, inasmuch as his government was ready to negotiate in the entire Vilna matter. The state of "peaceful war" between the two countries over this issue continued and threatened from time to time to burst forth into actual war and possibly drag the rest of Europe into the conflagration.

Early in November the attention of Europe was drawn to the Lithuanian-Polish dispute by charges emanating from Moscow to the effect that Poland was just waiting for the proper time to gobble up Lithuania and secure what she always desired, the port of Memel. To many competent observers it was the port of Memel rather than the city of Vilna that was the real root of the troubles between the two post-war States. Lithuania was chiefly agricultural and had practically no seagoing trade to speak of, yet she had the very fine port of Memel. Poland already had Vilna and was in a strong enough position to keep it, but Lithuania had Memel and Poland's problem was to gather in this seaport without disturbing the peace of Europe. The press of Europe in the fall continually discussed the proposition of the partition of Lithuania between Poland and Germany. Russia was chiefly interested through her friendship for Latvia, hoping, it was believed, to get a slice of Lithuania for that country. Poland, of course, denied that she had any intentions of dismembering Lithuania, but stated that she thought the matter ought to be cleared up one way or the other.

The other powers of Europe looked upon this question as a sore spot, and the concern of Great Britain, France, and Italy was expressed on November 21, when these powers told the Lithuanian government that it would please them mightily if it ended the "state of war" which had existed since 1920 and open the boundaries to Poland.

Premier Valdemaras declined to accept this friendly suggestion and stated that he would personally take the case of his country before the League of Nations. To complicate matters further the Russian government sent notes to the two governments concerning the matter which contained the significant statement that a treaty between Russia and Lithuania guaranteed the independence of the latter country. Charges and counter-charges were rife in the two countries, Lithuania, in particular, claiming that she had creditable evidence of a Polish plot to move against her.

In a note addressed to Russia, Great Britain, Germany, France, Italy, and the United States on November 28, the Polish government again denied any hostile intent toward Lithuania and again stated that the unnatural "state of war" should be abolished and the Niemen River and the Port of Memel should be opened up to Polish traffic. In the meantime, all kinds of rumors were spreading throughout Europe to the effect that the attitude of Valdemaras had considerably weakened his position at home and that he was in danger of losing his office at any time. He vigorously denied the reports, and stated that he was planning to organize a coalition government which would represent all shades of opinion in the country. Polish newspapers were as active in reporting hostile Lithuanian acts as the Lithuanian papers were in reporting Polish activities. There is no doubt that the two countries were on the brink of war and only the interest of the other powers of Europe kept back the flood.

When the League of Nations met at Geneva early in December the matter was discussed by the representatives of the great powers in advance of its discussion in the League itself. Chamberlain, Briand, Stresemann, and Litvinov all agreed that Lithuania must give up her "state of war," even though she might theoretically claim the province of Vilna. The Lithuanian minister refused to accede to this formula, claiming that his country had a legal right to Vilna which it did not intend to surrender. After the matter was publicly brought before the League gathering, a committee, consisting of Foreign Minister van Blokland of the Netherlands, was appointed to consider the matter and make a proposal for its solution. Another committee was immediately sent to the disputed frontier to investigate conditions there. After the arrival of Marshal Pilsudski on December 10, he and Premier Valdemaras held several conferences with the League Council, as a result of which the "state of war" between the two countries was declared ended, and in the event of future troubles between the two countries League officials were to take steps to bring about a settlement. For further details of the temporary settlement of this vexing problem, consult the article League of Nations.

LIVERSIDGE, Archibald. Australian scientist, died at Kingston Hill, England, September 26. He was born at Turnham Green, England, Nov. 17, 1847. He was educated at the Royal School of Mines and the Royal College of Chemistry, and at Christ's College, Cambridge University. In 1872 he was appointed to the chair of chemistry and mineralogy at the University of Sydney, New South Wales. From that time until his retirement with the title of emeritus professor in 1907 his services to science in Australia were of high value. He was one of the founders of the Australasian Association for the Advancement of Science and acted as its secretary and president. He was honorary secretary of the Royal Society of New South Wales for thirteen years, and also its president and editor of its *Journal.* He founded the School of Mines in the University of Sydney in 1890. He was the author of more than a hundred papers on scientific subjects.

LIVESTOCK. The outstanding feature of the domestic livestock and meat situation during 1927 was an approximate 25 per cent reduction in the exports of meat, particularly pork, to the European countries. However with the maintenance or slight increase in the total slaughterings of meat animals, prices of beef, lamb, and pork were fairly well maintained throughout the year. These conditions indicated a better stabilized livestock industry than had existed at any time since the War.

Unusually favorable conditions prevailed throughout 1927 in the extensive range areas of the western part of the United States. Though pastures were a little late in starting they were generally good and the production of grains and forage in nearly all the States was much above the preceding year and ample for carrying available livestock through the winter. No general drought movements of livestock were necessary and ranges were generally improved in carrying capacity due to ample rainfall. Such favorable climatic conditions and plentiful feed resulted in a tendency among cattlemen to restock with a consequence that slaughterings were somewhat less than in 1926, though prices were somewhat higher. There was some indication of a prospective reduction in the feeding of cattle in the fall and winter because of the poor corn crop in certain cornbelt States where early spring floods had interfered with corn planting. See LEATHER.

Recent tendencies for expansion in the sheep industry were reflected in a generally prosperous year for sheepmen largely because of a considerable demand for breeding stock. The western lamb crop was smaller than in 1926 and wool and lamb prices were slightly less. Late spring storms, however, in many states resulted in heavy losses of aged ewes as well as lambs.

The swine industry encountered relatively unfavorable conditions as compared with 1926, due largely to decreased exports of cured pork. Production and storage were only slightly greater than in 1926 and approximately equal to the three-year average for 1924, 1925 and 1926, but the prices declined. Because of relatively cheap corn in the spring there was little decline in the corn-hog ratio from the very favorable one experienced throughout 1926, but in June the ratio dropped to approximately half that for the corresponding month of 1926, making 100 pounds of pork equivalent to 9.4 bushels of corn. The low corn-hog ratio continued during the summer but improved somewhat in the fall.

For the purpose of comparison, data showing the numbers of animals slaughtered and the weights of the dressed meats killed under Federal inspection in the United States during the years 1926 and 1927, together with the three-year average for 1924, 1925, and 1926, are presented in the accompanying table.

MEAT SLAUGHTERED AND STORED UNDER FEDERAL INSPECTION IN THE UNITED STATES IN 1927, WITH COMPARISONS

	Cattle	*Calves*	*Hogs*	*Sheep and lambs*
Number slaughtered:				
1927	9,520,104	4,876,907	43,683,460	12,882,039
1926	10,180,146	5,152,589	40,636,208	12,960,878
3-year average [a]	9,875,420	5,146,727	45,517,236	12,317,568
Total dressed weight of slaughtered animals:				
1927—lbs.	4,784,563,209	492,664,038	7,730,761,143	501,705,972
1926—lbs.	5,225,909,396	530,603,447	7,272,534,141	500,888,268
3-year average [a]—lbs.	4,998,110,288	523,319,980	7,804,983,132	474,853,712
In storage on December 31:				
1927—lbs.	59,065,000 [b]	....	772,788,000 [c]	2,625,000
1926—lbs.	64,358,000 [d]	....	646,598,000 [e]	2,622,000
3-year average [a]—lbs.	74,741,000 [f]	....	742,618,000 [g]	2,282,000

[a] Average for 1924, 1925, and 1926.
[b] 37,767,000 lbs. fresh and 21,298,000 lbs. cured beef.
[c] 160,799,000 lbs. fresh, 509,063,000 lbs. cured pork, and 102,926,000 lbs. lard.
[d] 39,489,000 lbs. fresh and 24,869,000 lbs. cured beef.
[e] 103,614,000 lbs. fresh, 448,100,000 lbs. cured pork, and 94,884,000 lbs. lard.
[f] 50,357,000 lbs. fresh and 24,384,000 lbs. cured beef.
[g] 128,288,000 lbs. fresh, 516,746,000 lbs. cured pork, and 97,584,000 lbs. lard.

Conditions in the poultry industry were less satisfactory than in 1926. Egg production was heavy during the first half of the year but low prices failed to stimulate consumption sufficiently to move the large supplies on hand. Sales of poultry were likewise heavy. There was considerable indication of recovery, however, in both the egg and poultry markets in the fall and poultrymen were in a somewhat better position at the end of the year.

Some interesting trends in livestock production which had been developing for some time became sufficiently evident during 1927 to call for comment. Considerable expansion occurred in the sheep and goat industry in Texas where conditions are favorable for wool and mohair production. Wool production continued to outrank lamb production as a factor in sheep raising and a considerable number of wether sheep are kept solely for wool production. The extent of the sheep industry in Texas is largely dependent upon climatic conditions, which proved very favorable in 1927. In the Gulf Coast states livestock production continued to decline as a result of the operation of tick eradication and stock control laws. The relatively high prices of cattle for slaughter were tending, however, to stimulate a new interest in cattle production in the Southern States. The area west of the Continental Divide was no longer able to supply the Pacific Coast States with meat the year round and the eastern boundary of the area supplying the Pacific Coast trade continued to move east, coast packers reaching into Colorado for beef and lamb supplies. A considerable number of the hogs raised in the Great Plains States as far east as the Missouri River were shipped west for marketing at certain seasons. The evidences of specialized and localized production is quite striking when one considers the immense Pacific Coast shipments of eggs to the Atlantic seaboard, while at the same time hogs are being shipped from the Dakotas and Nebraska to California.

Disastrous floods in certain parts of the United States resulted in considerable losses to livestock. In the Mississippi flood alone it was estimated that 25,000 horses and mules, 50,000 cattle, 150,000 swine and 1,250,000 poultry were destroyed. There were also considerable losses to dairymen from the flood in the New England States.

The increasing interest in the quality of meat, particularly beef, culminated in a widespread education programme materially assisted by the Department of Agriculture. In May official beef graders began stamping carcasses of prime and choice grades for the information of the consumer. The keen interest shown in quality was indicated by the action of certain hotels in the Eastern States in recommending that their patrons eat meats other than beef on the grounds that the quality was poor and the prices too high. This action was not approved by various livestock producers' associations who pointed out the fallacies of such an attitude and set forth that a boycott of beef would result in an undeserved hardship to the stock farmer.

INTERNATIONAL CONDITIONS. The most significant factor in the international trade in meats, which had a very definite reaction on local supplies and prices, was the British embargo against continental fresh meats, thus automatically forcing continental producers of fresh pork to cure their products. As a result Great Britain was supplied with an overabundance of ham and bacon, making cured pork prices relatively unattractive to the American packers; at the same time unusually high fresh pork prices prevailed. The latter condition so stimulated pork production in Great Britain and Ireland that the British Ministry of Agriculture estimated that the imports of continental fresh pork in British markets were adequately replaced from British and Irish sources even during the peak of the season. As a result British bacon factories found considerable difficulty in getting hogs at reasonable prices for curing. The prospects for American pork products in British markets were further complicated during the year by an increased production of all classes of meat animals in most of the European countries.

WORLD'S POULTRY CONGRESS. The economic importance of the poultry industry internationally was emphasized by the interest shown in the third World's Poultry Congress, held at Ottawa, Canada, from July 27 to August 4. Representatives from nearly 40 foreign countries, all of the Canadian provinces, and practically every State in the United States attended. There were exhibits of practices and equipment in use in various countries as well as an international poultry exhibition with over 8000 entries. There were sectional meetings on marketing, nutrition, breeding, disease and extension, sponsored by the Poultry Science Association, for attendants from the various colleges and experiment stations. An outstanding achievement of the Congress was the formation of a closer bond between practical poultrymen and poultry scientists throughout the world.

RESEARCH. The importance of supplying animals with rations containing adequate amounts of minerals was thoroughly emphasized in investigations conducted during the last few years. Numerous disease conditions which were not previously thought to be related to nutrition were found due either directly or indirectly to mineral deficiencies. Failure of livestock to thrive properly on certain pastures in England, Wales, and Scotland, was due to a mineral deficiency in the forage plants resulting from a reduced mineral content in the soil. A lack of lime in forage plants was found to be the indirect cause of diseases known in various parts of the United States as bone chewing, loin disease, and in South Africa as lamziekte. This trouble results from range cattle gnawing at the bones of putrid carcasses which either contain injurious saprophytic organisms or toxins which cause definite diseases and heavy losses.

Another complicating factor which has developed in the studies of the mineral requirements of confined animals is the need for the anti-rachitic vitamin, known as Vitamin D, which may be supplied in certain feeds and for which the ultra-violet rays of the sunlight or the quartz mercury vapor lamp are also sources Further than this, a need has been shown for proper balance between the phosphorus and calcium in the rations. Studies at a number of the State Agricultural Experiment Stations showed that where a ration was lacking in lime or in the anti-rachitic vitamin, or in a proper proportion of phosphorus and calcium, there resulted abnormal reproduction and lactation in mature animals, and unfavorable growth and deficient bone formation in growing animals. The indication of such results was usually pointed out in experiments with laboratory animals such as rats, and similar results were then obtained when such tests were applied to dairy and beef cattle, swine and poultry.

Efforts have been made for many years to determine why high protein feeds from plant sources were not as satisfactory as protein supplements from animal sources for swine and poultry. Preliminary studies were largely concerned with qualitative differences in the proteins in the vegetable and animal feed but the results in recent years indicated that differences in the mineral content are at least an important factor. In many cases when vegetable proteins were supplemented with proper minerals equally good growth and reproduction were obtained as with animal proteins.

CHANGES IN PERSONNEL. The more important changes in personnel during the year included the resignation of F. B. Morrison, Professor of Animal Husbandry of the Wisconsin Agricultural College and Assistant Director of the State Experiment Station, to accept the position of Director of the New York State Agricultural Experiment Stations; he was succeeded by Dr. G. Bohstedt, Animal Husbandman of the Ohio Experiment Station. Professor R. T. Parkhurst, Head of the Poultry Department at the Idaho University and Agricultural Experiment Station, was appointed Director of the National Institute of Poultry Husbandry at the Harper Adams Agricultural College of England, succeeding Prof. W. C. Thompson, who resumed his position as Head of the Poultry Husbandry Department of Rutgers Agricultural College. H. W. Vaughan, Professor of Animal Husbandry in the University of Minnesota, was appointed Head of the Animal Husbandry Department of the Montana Agricultural College to succeed Prof. C. N. Arnett, who resigned.

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Peters, *Swine Questions Answered* (St. Paul, 1927); W. A. Lippincott, *Poultry Production* (Philadelphia, 1927, 4 ed., rev.); E. T. Brown, *The "How to do it" Poultry Book* (London, 1927). See also VETERINARY MEDICINE.

LLOYD, ALFRED HENRY. American educator, died at Ann Arbor, Mich., May 11. He was born at Montclair, N. J., Jan 3, 1864. He graduated at Harvard in 1886, and studied also at the Universities of Göttingen, Berlin and Heidelberg, 1889–91. His entire teaching career was spent at the University of Michigan, from 1891 until his death, successively as instructor in philosophy, assistant professor, junior professor and professor of philosophy. He was dean of the graduate school since 1915, and acted as president of the university in 1925. The University of California conferred on him the degree of LL.D. in 1924. Professor Lloyd was a member of the American Philosophical Association and of the Western Philosophical Association, and president of the latter body, 1915–16. He wrote: *Citizenship and Salvation* (1897); *Dynamic Idealism* (1898); *Philosophy of History* (1899); *The Will to Doubt* (1907); *Leadership and Progress* (1922), and numerous articles in philosophical, psychological, theological, historical, and sociological journals.

LOAN EXHIBITIONS. See ART EXHIBITIONS.

LOCARNO TREATIES. See ARBITRATION, INTERNATIONAL.

LOCOMOTIVES. See BALTIMORE & OHIO R. R. CENTENARY.

LOEW, lō, MARCUS. Motion picture producer and theatre owner, died at Glen Cove, N. Y., September 5. He was born at New York, May 7, 1875. He had but a scanty education, being compelled to earn his own livelihood at an early age. After various business experiences, he entered the theatrical field with David Warfield and Adolph Zukor as the proprietor of "penny arcades," consisting of penny peep shows. When the moving pictures began to attract attention, he was quick to see the possibilities in their exploitation, and he rose to prominence as an exhibitor, later adding vaudeville houses and picture producing studios to his holdings. At the time of his death he was the president of nearly one hundred subsidiary motion picture, vaudeville and booking companies, and was one of the wealthiest and most influential showmen in the world.

LONG, JOHN LUTHER. American novelist and playwright, died at Clifton Springs, N. Y., October 31. He was born at Hanover, Pa., in 1861, graduated at Lafayette College and practiced law in Philadelphia until he became successful as a writer. He frequently wrote about the Japanese and was well informed concerning their customs, although he had never visited Japan. His *Madame Butterfly,* written in 1898 as a short story, was revised in 1900 by David Belasco, with his collaboration, for a play, and later inspired Puccini to write the opera of the same name. Among the other books and plays which he wrote, some of them in collaboration with other playwrights, were: *Miss Cherry-Blossom of Tokyo* (1895); *The Fox-Woman* (1900); *The Darling of the Gods,* with Belasco (1902); *Adrea* (1904); *The Dragon Fly* (1905); *Heimweh, and Other Stories* (1905); *Billy Boy* (1906); *Dolce* (1907); *Remembrance* (1909); *Kassa,* written for Mrs. Leslie Carter (1910); *Baby Grand* (1912); *What Happens When One Loves One's Enemy* (1913); *Lady Betty Martingale,* written for Mrs. Minnie Maddern Fiske (1914); *Crowns* (1922); and the cantatas: *Yo-Nennen* (1903); *Gar-Anlaf* (1905); *The Song of Times* (1911); and the operas: *Hosi-San* (1906); *The Unjust Judge* (1916); and *Seffy* (1907).

LONG ISLAND, BATTLE OF. See CELEBRATIONS.

LOPARITE. See MINERALOGY.

LOS ANGELES. See CITY PLANNING; GARBAGE AND REFUSE DISPOSAL.

LOUISIANA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,798,509. The estimated population on July 1, 1927, was 1,934,000. The capital is Baton Rouge.

AGRICULTURE. Severely handicapped by reason of the spread of mosaic disease and low prices for their produce, as well as by the Mississippi floods, the cane growers of the State nevertheless made progress with the planting of an East Java cane known as P. O. J., obtained from the Federal Government Experiment Station. High yields and freedom from mosaic were reported of this cane, and according to the New Orleans *Times-Picayune* over 130,000 acres were planted to it and other new canes in the autumn, with expectancy of a restoration of this branch of the State's agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	1,560,000	545,000[a]	$52,820,000
	1926	1,979,000	829,000[a]	45,595,000
Rice	1927	481,000	17,316,000	15,065,000
	1926	501,000	16,282,000	17,096,000
Corn	1927	1,161,000	20,318,000	18,286,000
	1926	1,127,000	19,722,000	17,750,000
Potatoes	1927	41,000	2,665,000	4,897,000
	1926	36,000	2,196,000	4,172,000
Sweet potatoes	1927	99,000	9,702,000	6,791,000
	1926	79,000	7,110,000	6,399,000
Hay	1927	296,000	374,000[b]	5,097,000
	1926	251,000	296,000[b]	4,212,000
Sugar cane	1927	80,000	1,120,000[b]	....
	1926	127,916	864,299[b]	....

[a] bales, [b] tons.

MINERAL PRODUCTION. The output of petroleum, the chief mineral product of the State, was much increased in 1926, both as to quantity and as to total value. There were produced 22,803,000 barrels of petroleum, in 1926, as against 20,272,000 barrels in 1925; the product for 1926 was valued at $38,400,000, that for 1925 at $32,500,000. Natural gas production was 152,620,000 M cubic feet in 1925, the latest year of available statistics, and in 1924, 160,945,000 M cubic feet; in value, $8,125,000 in 1925 and in 1924, $7,626,000. From natural gas were derived in 1926 47,000,000 gallons of gasoline, as against 43,489,000 gallons in 1925; having a value of some $4,100,000 for 1926 and for 1925 of $4,216,000. The production of salt was 520,400 short tons in 1926, to 500,350 short tons in 1925; the product was valued at $2,457,875 in 1926, in 1925 at $2,218,265. The total value of the State's mineral production in 1925 was $60,503,981 with deductions made for duplication; in 1925 it was $56,930,681.

FINANCE. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of general departments of the State government in the fiscal year ending December 31, 1926, were $17,178,455; their rate per capita was $8.95. They included $4,367,879 apportioned for education. Totals not included above, of $60,911 expended in public service enterprises, $729,734 in interest and $8,522,548 in permanent improvement outlays, brought the aggregate of State expenditure to $26,491,648. Of this, $10,413,929 was for highways; $2,790,689 being for maintenance and $7,623,240 for construction.

Revenue receipts were $26,794,207; or per capita, $13.96. Of their total, property and special taxes yielded 39.9 per cent, or $5.58 per capita. Earnings of departments and compensation paid the State for officials' services supplied 4.9 per cent of revenue; 37.4 per cent was derived from sale of licenses, chiefly on incorporated companies, on motor vehicles, and on trades and professions, from the severance tax, and from a sale tax on gasoline.

Net State indebtedness on December 31, 1926, was $14,687,700 or $7.65 per capita. Property subject to ad valorem taxation bore a valuation of $1,717,877,125. State taxes levied were $9,877,793, or $5.15 per capita.

TRANSPORTATION. The number of miles of railroad line in the State Jan. 1, 1927, was 4,828.36. There was no new construction reported in 1927.

EDUCATION. The large yield of the tobacco sales tax in the first year of its operation, attaining about $1,500,000, aided educational work in many parishes. The Secretary of the State Teachers' Association, in the *Journal* of the National Education Association, reported at the end of the year that school buildings and equipment ruined by the flood had been generally restored, and that full sessions were in prospect of being held.

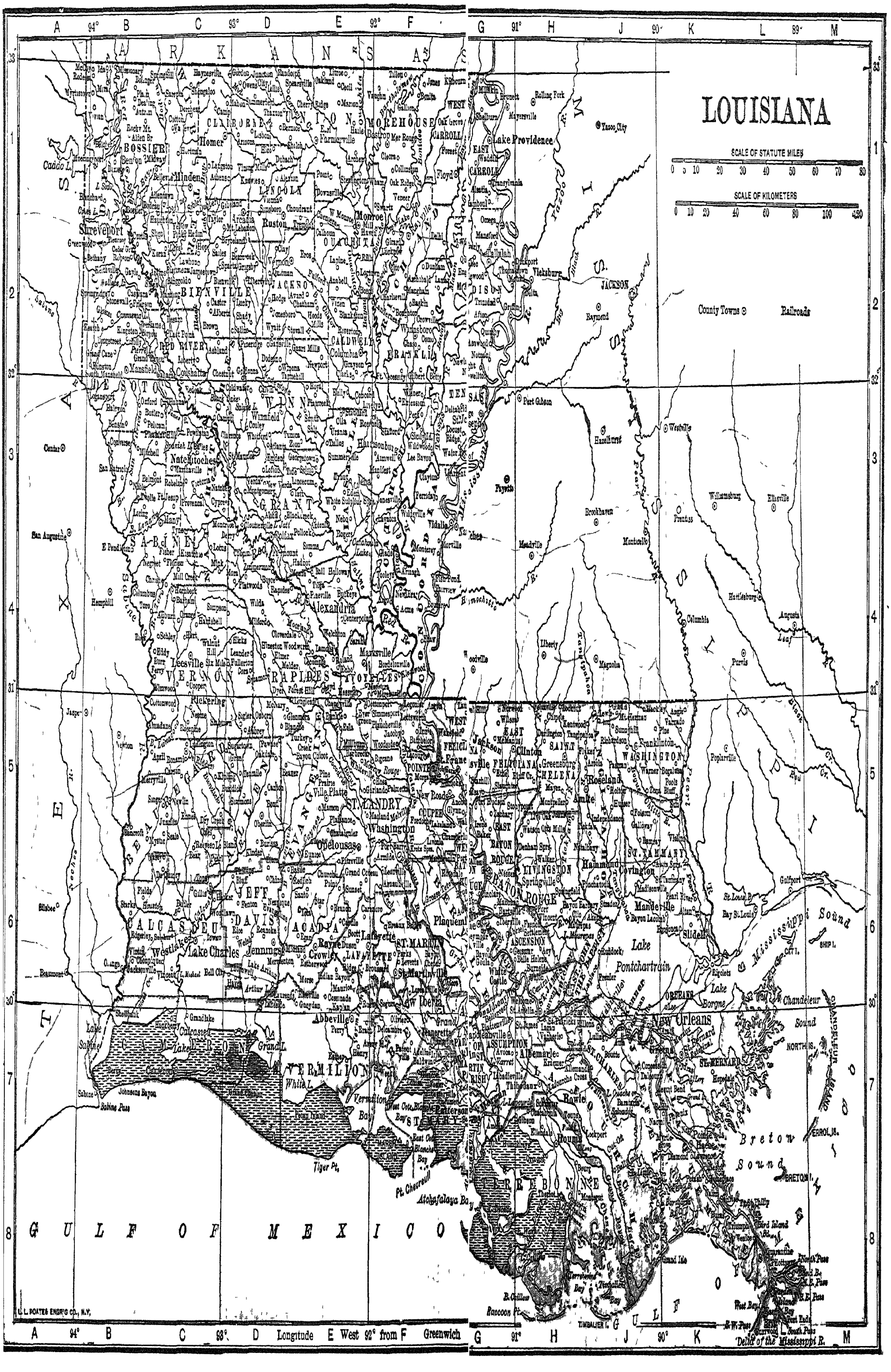
CHARITIES AND CORRECTIONS. The State Board of Charities and Corrections, though possessing no administrative powers, exercises supervision over State institutions. It is composed of six members, with the Governor as chairman ex officio. The chief charitable and penal institutions conducted by the State or receiving State aid are the Charity Hospital, New Orleans; Charity Hospital, Shreveport; Central Louisiana Hospital (insane), Pineville; East Louisiana Hospital, Jackson; State Colony and Training School for Feeble-minded, Alexandria; State School for Deaf, Baton Rouge; State School for Blind, Baton Rouge; State School for Blind Negroes, Baton Rouge; Soldiers' Home of Louisiana, New Orleans; Louisiana State Penitentiary, Baton Rouge; Louisiana Training Institute (correctional), Monroe. According to the Department of Commerce 765 prisoners were admitted to the State penal institutions in 1926; there were 3458 patients in State hospitals for the insane on Jan. 1, 1927.

LEGISLATION. A special session of the State Legislature convened September 6, to pass relief measures in the emergency brought about by the Mississippi River floods earlier in the year. The session lasted five days, ending September 10. Among the matters dealt with was the claim of inhabitants of the parishes of St. Bernard and Plaquemines for compensation for the losses and sustenance expenses that they incurred when their territory was inundated through the intentional opening of a crevasse in the levees near Caernarvon, to lower the water level of the river below that point and remove the peril to New Orleans.

POLITICAL AND OTHER EVENTS. Gov. Oramel H. Simpson was reëlected and the regular Democratic State ticket were elected on November 8. The State suffered severely in the Mississippi Valley floods of April and May. Before the end of April the height of the river at New Orleans attained an unprecedented level which threatened to break or overflow the levees there and cause the inundation of the city. In order to hasten the movement of the water past the city, the Governor ordered the dynamiting of the levee at Poydras, some 12 miles downstream. Inhabitants of the Acadian parishes of St. Bernard and Plaquemines, which lay in the track of the intended discharge, were warned, and several days were given them to withdraw. On April 29 the levee was dynamited and the flood was admitted to the abandoned lands. Levees at Bayou des Glaises broke May 12, laying waste 35,000 homes along the Atchafalaya. The New Orleans Clearing House Association voted a fund of $2,000,000 to be lent to needy refugees for immediate succor. Many of these were muskrat trappers, and later presented, among their claims against the State, demands to be indemnified for the loss of the muskrats which abounded in the parishes before the inundation, and formed one of the chief sources of local livelihood. The Legislature was convened to provide relief for the flood sufferers (see *Legislation*, above). In October the New Orleans Levee Board formed plans to increase the height of levees fronting the city by 3 feet to 28 feet, at a projected cost of $11,433,700. During the period of flood hardship in the State Secretary of Commerce Hoover, acting as the head of the Federal relief organization, appointed former Gov. John M. Parker as director of relief within the State.

Suit was brought by Governor Simpson for the ousting of State Conservation Commissioner V. K. Irion, who had previously refused to resign. Contentions in this suit had to do with the business conduct of the Conservation Department, and especially the disposal of its funds. A judicial order ousting Irion resulted. Failure of judges to impose criminal sentences in accordance with the indeterminate sentence law of 1925 led to legal efforts to obtain the freedom of more than 100 convicts alleged to have been illegally sentenced, but the Supreme Court adopted the course of remanding such cases to the sentencing judge for resentence. The State Supreme Court in a decision of January 3 upheld the constitutionality of the State stamp tax on tobacco products, levied by an act of 1926 for the providing of State aid to schools. The United States Supreme Court sustained May 3 the State medical statute under which a chiropractor had been prevented from practicing without first conforming to the State medical requirements. The same court held March 14 that a State law and city ordinances of Louisiana having the effect of segregating negro and white races where the majority of a community demanded it were invalid. The Louisiana Highway Commission began work in July on the Chef and Rigolets bridges and the Lake Shore highway, to be completed in 1928.

OFFICERS. Governor, O. H. Simpson; Lieutenant-Governor (succeeding O. H. Simpson), Philip H. Gilbert; Secretary of State, J. J. Bailey;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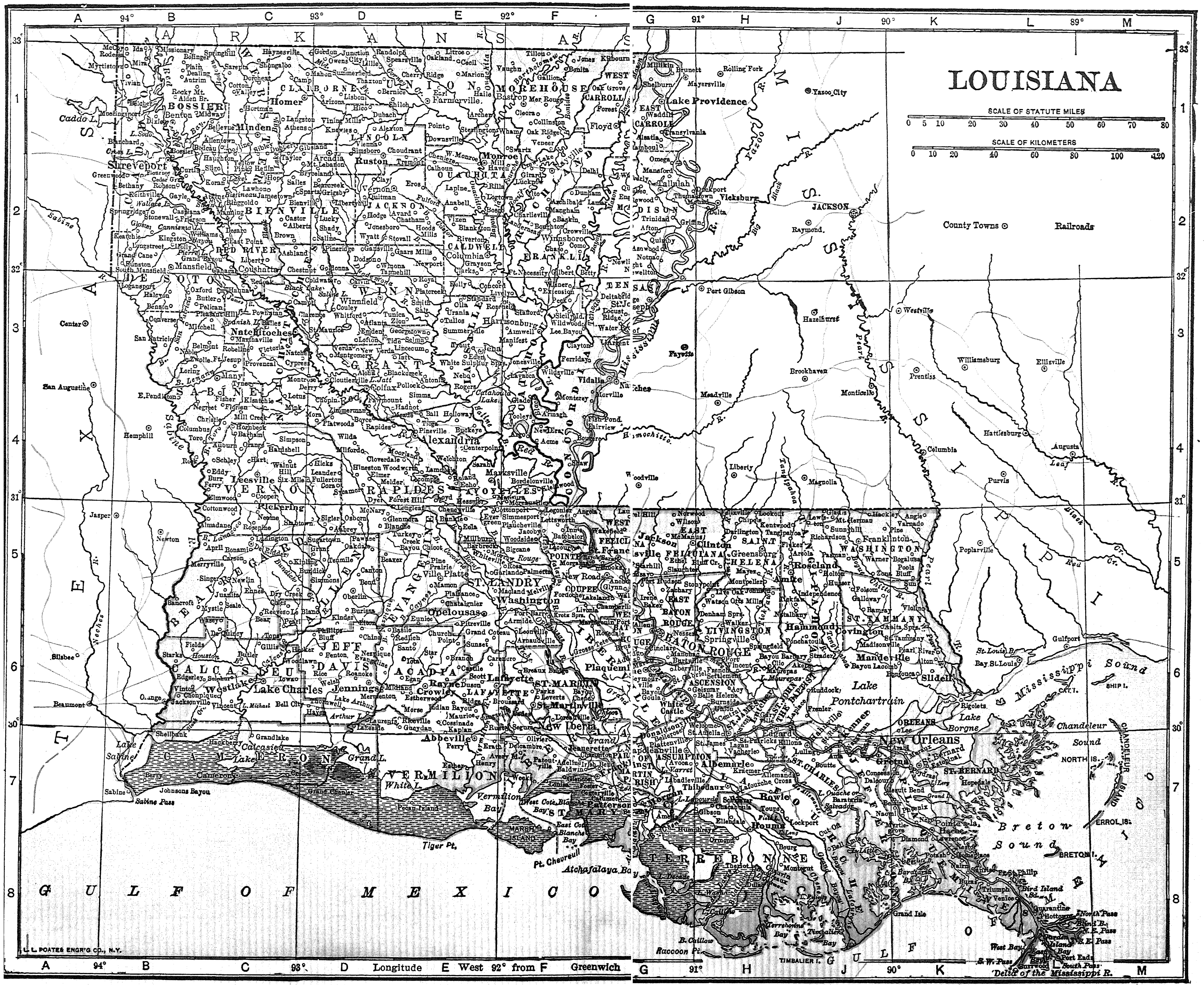
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Natchitoches
Vicksburg
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members, 4,205,138; confirmed members, 2,755,714; communing members, 2,296,631; Sunday schools, 11,705; officers and teachers, 123,819; scholars, 1.448,217; value of congregational property, $312,699,234; total congregational expenses, $45,750,935; total benevolences. $11,064,268; and total expenditures, $56,744,047.

The Board of American Missions of the United Lutheran Church aggressively spent its first year of organization, and devoted itself to the task of evangelization. The Canada Synod established a Lutheran Immigration Board to care for and to bring Lutheran immigrants to Canada. The Lutheran Builders' Association of metropolitan New York was organized under the New York Synod, and $100,000 was raised by the New York and New England Synods to aid in establishing home missions in the metropolitan area. Evangelization was further carried forward through radio broadcasting stations. The institutional and non-institutional inner mission work of the Lutherans included the establishment of the National Lutheran Sanitarium, at Albuquerque, N. Mex.; the erection of a chapel, at a cost of $50,000, on the grounds of the Augustana Deaconess Home, Omaha, Neb.; and the erection of new hospitals, one in New York City, another in Brooklyn, N. Y.

Foreign mission work in China was handicapped by conditions there, but a new field was acquired in Tanganyika under the direction of the Augustana Synod Foreign Mission Board, which received a bequest of $500,000 during the year for its foreign mission work. The United Lutheran Church of the Andrha country, India, associated with the United Lutheran Church in America, established Andrha College which began its career with an endowment of over $300,000. Developments in India were further marked by the movement toward separate established native churches, and especially in the organization of the Telugu Lutheran Church with 140,000 baptized members and 55,000 adult communicants, and in the formation of the India Lutheran Federation at Rajahmundry, consisting of first, the Lutheran Church in the Andrha country; second, of the Tamil Lutheran Church, and, third, of the Gossner Evangelical Lutheran Church.

The National Lutheran Council continued to aid the countries of Europe that suffered from the World War and especially the Lutheran people of Russia. A theological seminary was established at Leningrad during the year and the Lutherans of Siberia were visited by Bishop Theo. Myer, D.D. A considerable movement of educational and evangelistic nature was the inauguration of Chautauqua Summer Assemblies; the development of summer colonies at Paradise Falls and Lutherland in the Poconos, Pennsylvania, the Finnish Colony in Dutchess County, New York, and the Lutheran Colony on Lake Geneva, Wis.; and in Lutheran tours of Europe. Other important achievements of the year were: The successful inauguration of a $400,000 campaign for pension and relief for Lutheran pastors of the United Lutheran Church; the organization of campaigns to cancel the budget indebtedness of numerous churches; and campaigns conducted for such educational institutions as Hartwick Seminary, Otsego County, New York, and the Pacific Lutheran College, Parkland. Wash.

Among the publications of the year were: The fifth edition of the *Lutheran World Almanac,* and the *Ansgar Lutheran,* an English organ of the United Danish Lutheran Church. Progress was also reported in the preparation of an intersynodical hymnal and in the preliminary translation of Luther's Catechism.

LUXEMBURG, lŭks′em-bûrg. A small state of western Europe, bounded by Germany, France, and Belgium; neutralized by the Treaty of London, 1867; occupied by the Germans during the war; restored to independence after the armistice. Area, 999 square miles; population, according to the census of 1922, 260,767, as compared with 263,824, Dec. 1, 1916. The great majority of the population is Roman Catholic. Luxemburg is a country of small landowners and of farmers tilling their own holdings. The total area of land devoted to agriculture is about 500,000 acres, and of this amount approximately 430,000 acres are farmed by resident proprietors. Individual farms number in the neighborhood of 40,000. The principal foodstuffs raised in the grand duchy are potatoes and cereal grains, including rye, wheat, barley, and oats. The cultivation of oats covers the largest area of land and is followed in importance by potatoes. The leading industry of the state, however, is mining and the production of iron and steel. The mineral resources of Luxemburg include comparatively extensive iron-ore mines, as well as slate, lime, dolomite, quartzite, and stone beds. The production of pig iron which in 1913 was some 2,510,000 gross tons, in 1926 had reached 2,520,000 tons and for 1927 was estimated at 2,660,000 tons. In 1927 the production of steel ingots and castings which had amounted to 2,210,000 tons in 1926 was estimated at 1,420,000 tons. Brick, printing, and leather and glove industries are also relatively important. Separate figures on foreign trade have not been available since the economic union in 1922 with Belgium. The budget estimates for 1926 were: Revenue, 168,477,347 francs; expenditure, 162,299,434 francs. The public debt on Dec. 31, 1924, amounted to 468,742,945 francs. In 1924 there were 334 miles of railways. Under the constitution, as amended in 1919, sovereign power rests in the nation and the representatives are elected on the basis of universal suffrage and proportional representation. The Grand Duchess in 1927 was Charlotte Aldegonde, born Jan. 23, 1896, who succeeded to the throne, Jan. 9, 1919. The Minister of State and President of the government was M. Bech (appointed July, 1926). The other members of the cabinet were: Director-General of Justice, Public Works, Trade and Industry, N. Dumont; Social Welfare and Labor, M. Dupong; Finance and Public Instruction, M. Clemang.

LUXOR. See Archæology.

LUZZATTI, lo͞o-tsät′tē. Luigi. Italian statesman and financier, died March 29. He was born at Venice, Mar. 11, 1841, of a Jewish family. He studied economics at Padua, and devoted considerable time to literature, philosophy and the natural sciences. Soon after his graduation from college the authorities at Venice, then under the control of Austria, compelled him to leave that city; he was charged with treason as a result of his organization of a mutual aid society among the gondoliers. In 1863 he first taught political economy at Milan, and launched a campaign for people's banks. When the province of Venice was annexed to Italy he was made professor of constitutional law in the University of Padua. In 1870 he was elected to the House of Deputies, in which he sat for more than fifty years, until he was elected to the Senate in 1921. Luzzatti's ability as a financier won early recognition, and he was only twenty-eight when he became vice minister in the cabinet of Minghetti, in 1869. Five times, in 1891, 1896, 1903, and 1906, and finally in 1920, at the age of seventy-nine, he held the portfolio of finance. In 1910 he was head of the government, with the portfolio of minister of the interior. In March, 1911, his term as premier was ended by an adverse vote on an electoral reform bill.

Throughout his political career Luzzatti retained his interest in education, and from 1907–09, a period of comparative calm in politics in Italy, he taught constitutional law at the University of Rome and prepared his book, *La Liberté de Conscience et de Science,* published in 1910. His activities were widely varied, but his most notable successes were achieved as a financier and an advocate of social and economic reforms. He was also an active philanthropist. Among his numerous honors and decorations were those of membership in the Institute of France and Grand Cross of the Legion of Honor; knighthood of the Order of Savoy; Grand Cross of Sts. Mauritius and Lazarus, and Grand Cross of the Order of Leopold of Belgium. In his latter years he took little part in politics, but occupied himself with the preparation of his memoirs and of a complete edition of his numerous books. Among them were, besides the one already named: *La Diffusion du Crédit et les Banques Populaires* (1863); *L'Église et l'État en Belgique avec Applications à l'Italia* (1866); *Pro Italico Nomine; Scienza e Patria* (1916); *Sul Filosofo Dalmata Giorgio Politeo; Grandi Sacrifizi per la Patria* (1924); *Dio nella Liberta* (1926).

LYFORD, Ralph. American composer and conductor, died at Cincinnati, September 3. He was born at Worcester, Mass., in 1882. After graduation at the New England Conservatory, he studied conducting with Nikisch at Leipzig. He was associated as conductor with the San Carlo Opera Company, the Boston Opera Company, the Aborn English Opera Company and the Cincinnati Zoo Opera. From 1914 on he was head of the operatic and orchestral departments at the Cincinnati Conservatory and assistant conductor of the Cincinnati Symphony Orchestra. His works include many songs, six string quartets, a symphony and an opera, *Castle Agrazant* (Cincinnati, 1926).

LYNCHINGS. The Tuskegee Institute of Alabama reported that for 1927 sixteen negroes were lynched in the United States. In 1926 the number of lynchings had been 30; in 1925, 17; in 1924, 16; in 1923, 33. The States in which the 1927 crimes had taken place were: Arkansas, 3; Kentucky, 1; Louisiana, 1; Mississippi, 7; Missouri, 1; Tennessee, 2; Texas, 1. The negroes lynched had been charged with the following offenses: murder, 7; attempted murder, 2; rape, 2; attempted rape, 3; improper conduct, 1; charge not reported, 1. Twelve of the persons lynched had been taken from the hands of the law, 6 from jails and 6 from officers of the law outside of jails. Four of the lynched negroes were burned to death and 2 were put to death and their bodies then burned. In 42 cases officers of the law prevented lynchings. Eight of these had occurred in northern States and 34 in southern States. In 24 cases the prisoners were removed or the jail guards increased. In 18 other cases armed force was used to repel the would-be lynchers. In these 42 instances 68 persons were saved from mobs, 15 being whites and 53 negroes. A notable example of official bravery in the face of threatened mob violence was that of the sheriff of Hillsborough County, Florida, who for three days, in June, stood off a Tampa mob that was seeking to lynch one of his prisoners. State troopers were called for who fired into the mob and dispersed it after killing 5 persons and wounding 32 others. But the intended victim of the mob was a white man and not a negro.

LYNN-JENKINS, Frank. English-American sculptor, died at New York, September 1. He was born at Torquay, England, in 1870, and was educated at Weston College, the Lambeth School of Modeling and the schools of the Royal Academy, England. Before going to the United States to make his home there, ten years before his death, he exhibited in England at the Royal Academy and the Paris Salon. He won many prizes, notably the silver medal of the International Exposition at Paris in 1900. One of his pieces, a Madonna and Child, is in the Metropolitan Museum of Art, New York. At the time of his death he was working on a marble group for Fairmount Park, Philadelphia, Pa. He made his home in New York.

MAAS, Anthony J. Roman Catholic theologian, died near Poughkeepsie, N. Y., February 20. Born at Bainkhausen, Westphalia, Germany, Aug. 23, 1858, he was educated at the private schools of Hellefeld, 1869–72; Stockum, 1872–72; and Arnsberg, 1874–77, going to the United States in 1877. He was ordained a Roman Catholic priest, entering the Society of Jesus and continuing his studies at Manresa, N. Y., and at Woodstock College, Frederick, Md., where he became professor of Greek and Latin. He went to Manresa, Spain, in 1893–94. In 1912 he was made Provincial of the Society of Jesus in the Province of New York and Maryland, and, upon his termination of office, assumed the professorship of ascetical theology at the novitiate of St. Andrew, Poughkeepsie, N. Y. He was an authority on Oriental languages; author of *Day in the Temple,* 1892, *Christ in Type and Prophecy,* 1893–96, *Commentary of Gospel of St. Matthew,* 1898. His *Life of Christ,* 1891, was a textbook in Catholic schools and colleges. He was a contributor to theological journals and to the *American Catholic Quarterly Review.*

MABERY, Charles Frederick. American chemist, died at Portland, Me., June 26. Born Jan. 13, 1850, at New Gloucester, Maine, he attended the public schools of that town and entered Harvard, receiving the degree of bachelor of science from the Lawrence Scientific School in 1876, and the doctor's degree from Harvard in 1881. He was assistant instructor of chemistry at Harvard from 1874 to 1883 when he became professor of chemistry at Case School of Applied Science serving until 1911. In 1887, after working on the development of electrical smelting, he became interested in oil refining and did notable research work in organic chemistry, especially in the study of the composition of lubricating oils from petroleum, which resulted in his inventions of the lubricants oildag and aquadag

Some of his investigations and researches were carried on in Europe. A lover of art, he was active in the development of the Cleveland School of Art. At the time of his death he was professor emeritus of Case School of Applied Science, having retired from active teaching in 1911.

MACAO, mȧkä'ō. An island at the mouth of the Canton River, in China, which, with the two adjacent islands of Taipa and Colôane, constitutes a province of Portugal. Area, 4 square miles, population, according to the census of 1910, 74,866, of whom 2171 were Portuguese and the remainder for the most part Chinese. The trade is chiefly in transit and is mainly in the hands of the Chinese. In 1926–27 the revenue was estimated at 3,029,210 escudos and the expenditure at 3,321,742 escudos. The city of Macao is divided into two parts, inhabited respectively by Chinese and non-Chinese, each under its own administration.

McCOOK, John James. American clergyman and educator, died at Hartford, Connecticut, January 9. Born in New Lisbon, Ohio, Feb. 2, 1843, he was educated at Jefferson College, and Trinity College, from which he graduated in 1863, and then attended the College of Physicians and Surgeons of Columbia, and later Berkeley Divinity School. He served as professor of modern languages at Trinity College from 1883 to 1923 and at the time of his death he was professor emeritus and trustee. During the Civil War he served as a lieutenant in the First Virginia Volunteers, and he was the last survivor of the "Fighting McCooks" of Ohio. After his ordination as a priest of the Protestant Episcopal Church in 1867 he was rector of St. John's Church in East Hartford for many years. A writer as well as a linguist, he was the author of many articles on various sociological topics, and editor of the *Church Weekly* in 1872. In 1910 he was honored with the degree of D.D. by the Berkeley Divinity School. He served as a member of public committees for penological legislation, and wrote extensively on penological subjects, and welfare and charities.

McDANIEL, George White. American clergyman, died at Richmond, Va., August 18. He was born Nov. 30, 1875, in Grimes Country, Texas, and, after receiving the degree of bachelor of arts from Baylor in 1898, he graduated from the Southern Baptist Theological Seminary, in 1900. In 1905 he received the degree of D.D. from Richmond College, and, in 1920, the degree of LL.D. from Baylor University. Ordained in the Baptist ministry in 1900, he held pastorates at Temple, Tex., 1900–02; at Gaston Avenue Church, Dallas, Tex., 1902–04; and at the First Baptist Church, Richmond, Va., from 1904 until his death. He served three years as president of the Southern Baptist Convention; was trustee of the Southern Baptist Theological Seminary; president of the Baptist General Association of Virginia; and president of the Board of Directors of the Baptist Orphanage of Virginia. Among his writings were *The People Called Baptists, The Churches of the New Testament, A Memorial Wreath, Seeing the Best,* and *The Supernatural Jesus.*

McDONALD, Howard. American educator, died July 10. He was born at Duncan Falls, Ohio, Apr. 11, 1876, and was educated at Muskingum College, Ohio (A.B., 1901), Princeton University (A.B., 1902), and the University of Michigan, where he received a Ph.D. in 1916. He was professor of Greek and Latin at Knoxville College, 1902–03, of Greek and Philosophy at Muskingum College, 1903–09, serving from 1910 until 1913 as clerk of the Common Pleas Court of Muskingum County, Ohio, and as dean and professor of political science of Muskingum College from 1915–18. In 1918 he became dean and professor of history and economics at Parsons College, Fairfield, Iowa, of which he was made president in 1922.

MACEDONIA, măs'ē-dō'nĭȧ. A region in the Balkan peninsula, nearly corresponding to the vilayet of Saloniki, in the former Turkish Empire; after the Balkan Wars partitioned among Greece, Serbia, and Bulgaria, Greece receiving the largest share. The departments under Greek control with their populations, according to the census of 1920, are as follows: Saloniki, 407,238; Drama, 182,593; Kosani, 163,004; Florina, 127,941; Serres, 112,135; Pellis, 97,521; total, 1,090,432.

McEVOY, Ambrose. British painter, died at London, England, January 4. He was born in 1878. He was educated at the Slade School. He was a member of the International Society of Painters, the National Portrait Society and the Royal Society of Portrait Painters, and was elected an associate of the Royal Academy in 1924 and an associate of the Royal Society of Painters in Water Colors in 1926. Among the galleries in which his works were hung were the National Gallery of British Art (Tate Gallery), London; the Luxembourg Museum, Paris, and the Municipal Gallery of Johannesburg, South Africa.

McGILL UNIVERSITY. A coeducational institution of higher education at Montreal, Quebec, Canada; founded in 1821. The enrollment for the autumn session of 1927 was 2772; distributed as follows: arts, 997; applied science, 339; medicine, 470; commerce, 212; graduate school, 120; music, 166; dentistry, 56; law, 61; physical education, 59; pharmacy, 26; social workers, 29; graduate nurses, 24; Macdonald College (agriculture and household science), 213. The registration in the French Summer School of 1927 was 192. The number of members on the teaching staff was 452. Additions to the staff during the year included: A. Grant Fleming, M.B., D.P.H., to be acting head of the department of public health and preventive medicine; Wilbert George McBride, B.Sc., to be Macdonald professor of mining engineering; Louis d'Hauteserve, Diplomé ès lettres Philosophie de l'université de Paris, to be lecturer in French; and 11 other assistant professors, and lecturers in the various departments. The productive funds of the University amounted to $18,178,843, and the income for the year to $1,949,193. The library contained 268,059 volumes. Principal, Sir Arthur William Currie, G.C.M.G., K.C.B., LL.D.

McGOVERNITE. See Mineralogy.

MACH, maG, Edmund (Robert Otto) von. German-American writer and lecturer on art, and outstanding advocate of Germany in the World War, died at Bangor, Me., July 14. He was born at Gaffert, Pomerania, Germany, Aug. 1, 1870. After serving two years in the German army, 1889–91, he went to America, and entered Harvard University in the latter year. He graduated in 1895, and in 1899–1903 was an instructor in fine arts at Harvard. He was also an instructor in the history of art at Wellesley

College, 1899–1902, and a lecturer in the history of art at Bradford Academy, Cambridge, Mass., 1902–15. At the outbreak of the World War he became one of the most outspoken advocates, in America, of Germany's cause, and until his death he wrote and spoke indefatigably in the service of his native land. He was a member of the Archæological Society of America and of the Copley Society, of Boston, and a governor of the latter for three years. In 1923 he gave up his academic career to study law. He wrote: *Greek Sculpture, Its Spirit and Principles* (1903); *A Handbook of Greek and Roman Sculpture* (1904); *Outlines of the History of Painting* (1905); *The Art of Painting in the Nineteenth Century* (1908); *What Germany Wants* (1914); *Germany's Point of View* (1915); *Why Europe Is at War* (1915); *Sir Edward's Evidence* (1915), besides numerous translations and magazine and newspaper articles.

McKEAN, Horace Grant. American educator, died at Newark, N. J., January 9. He was born at Hammonton, N. J., Dec. 13, 1864, and, after graduating from Colgate University in 1889, studied at Crozer Theological Seminary, being ordained in the Baptist ministry in 1890. For five years he held pastorates at Philadelphia and Arlington, N. J., and then began his teaching career at Pennsylvania Military College, Chester, Pa., where he was professor of English and literature 1895–99. He was headmaster of Colby Academy, New London, N. H., 1899–1905, and going to Union College in the latter year held the chair of rhetoric and public speaking for twenty-two years.

McKENZIE, Donald Duncan. Canadian jurist and statesman, died at Halifax, N. S., June 27. He was born at Lake Ainslie, N. S., Jan. 8, 1859. He was educated at the Sydney, N. S., Academy, and was admitted to the bar of Nova Scotia in 1889. He was first elected to the legislature of Nova Scotia in 1900, resigning in 1904, and in 1907 becoming a member of the Dominion House of Commons. He was reëlected in 1908, 1911, 1917, and 1921. After the death of Sir Wilfred Laurier in 1919, Mr. McKenzie was elected House leader of the Liberals in the Canadian Parliament, the Liberals being then in opposition. This position he relinquished to Mackenzie King. In 1921–23 he was solicitor general of Canada, and then he became puisne judge of the Supreme Court of Nova Scotia and judge in bankruptcy.

McLOUTH, Lawrence Amos. American Germanic scholar, died at New York, February 24. He was born at Ontonagon, Mich., Jan. 19, 1863. He graduated in 1887 at the University of Michigan, to which, after three years as principal of the Danville, Ill., high school and two years of study at Leipzig, Heidelberg and Munich, he returned as instructor in German. In 1895 he became professor of Germanic languages and literatures at New York University. In 1920–21 he was exchange professor at Peking, China. He contributed articles on literary, philological and pedagogical subjects to periodicals; translated and edited Zwingli's sermons (1902) and some of the novels of Gerstäcker (1904) and Heyse (1910); and had charge of the department of German literature in the second edition of The New International Encyclopædia (1913–16).

McNARY-HAUGEN FARM RELIEF BILL. See Agricultural Legislation; also under United States.

MACPHERSON, Charles. British organist, died at London, May 28. He was born at Edinburgh, Mar. 10, 1870. After studying the organ under Sir George Martin, he entered the Royal Academy of Music in 1890, and two years later won the coveted Lucas Prize. In 1896 he was appointed professor of composition at the Royal Academy, and in 1916 organist of St. Paul's Cathedral, filling both positions till his death. From 1920 to 1922 he was president of the Royal College of Organists. His most important composition is a setting of the 137th Psalm for soli, chorus, organ and orchestra. He also wrote chamber music and numerous works for the organ.

MACPHERSON, Major General Sir William (Grant). British military surgeon and editor, died at London, England, October 15. He was born at Kilmuir, Scotland, Jan. 27, 1858, and was educated at Fettes College, Edinburgh, and at Edinburgh, Tübingen and Leipzig Universities; he completed his medical studies at the last-named institution. His career as a medical officer of the British army took him to South Africa, Morocco, Panama, Cuba, India and other parts of the world. In the Russo-Japanese War of 1904–05 he gained valuable experience while attached to the Japanese army in the field. The Government of Japan conferred on him the war medal, and the Japanese Red Cross awarded him its decoration, for meritorious service in the war.

He was one of the first British medical officers sent to the front in the World War, and from 1914 to 1918 he was director of medical services of the First Army and deputy director general at headquarters. In 1915–16 he was director of medical services of the British force in Macedonia. He received high honors, being made a Knight Commander of the Order of St. Michael and St. George for his services in the War, while Japan and Italy conferred decorations on him and America gave him the Distinguished Service Medal. He was editor-in-chief of the British official medical history of the World War.

MADAGASCAR. An island belonging to France lying off the southeast coast of Africa, from which it is separated by the Mozambique Channel, about 240 miles wide at its narrowest point. The island, whose area is estimated at 228,707 square miles, has over 3000 miles of coast, and is 980 miles long with a greatest breadth of 360 miles. The population according to the census of 1925 (including the Mayotte and Comoro Islands), was 3,598,728, of whom 3,565,593 were Malagasy, 22,627 Europeans, and 10,508 Asiatics. The most numerous tribes of the Malagasy are the Hova or Merina, which are the most industrious and enterprising, and whose language is the prevailing dialect. Capital, Antananarivo, in the centre of the island with a population in 1925 of 70,812. Other large towns are: Tamatave, with a population in 1925 of 13,395; and Diego Suarez, with 13,788. The former is the principal port on the east coast and the latter in the north. Education is compulsory from eight to 14 years of age. On Sept. 15, 1925, there were 991 official schools for European and native children, with 90,833 pupils and 1739 teachers, and 517 private schools, with 49,750 pupils from 1144 teachers.

Production. The chief occupation of the people is agriculture and the principal product grown by the natives is rice. Other products are vanilla, cloves, coffee, sugar cane, manioc, butter beans, and mangrove bark. The French have introduced the culture of cotton, rubber, tobacco and the silk worm. The forests contain many valuable woods. Among the minerals are graphite, corundum and mica, gold, precious stones, iron, and copper. Some radio-active ores have been exported in small quantities.

COMMERCE. Preliminary statistics furnished by the Madagascar customs service show imports into Madagascar during 1926 totaling 130,000 metric tons valued at 574,590,000 francs. As compared with imports in 1925 these figures represent an increase in tonnage of 11 per cent and in franc value of 16 per cent. Exports, which declined by 4 per cent in tonnage but increased by 20 per cent in franc value, totaled 221,000 metric tons valued at 535,857,000 francs. However, on a dollar basis, both imports and exports showed heavy losses as compared with the preceding year.

The higher imports in 1926 were attributable chiefly to general progress in the industries of the island and to larger purchases of petroleum products, alcoholic beverages, and a number of other items. Purchases of cotton piece goods, always the leading article of import, were much lower than in 1925; nevertheless, such goods comprised nearly one-third of the total value of imports in 1926. Next in order of importance came clothing, machinery and parts, petroleum and petroleum products, household articles, coal, silk goods, unmanufactured metals, wines, yarns, unscented soap, and paper. Imports of passenger automobiles numbered 281, as compared with 269 in 1925. Imports of trucks numbered 124, of motor cycles 281, and of bicycles 5281.

There was a heavy falling off in exports of rice during 1926, owing to the smaller French demand for Madagascar rice in competition with that from French Indo-China, and also because of export prohibition on rice during the first half of the year. Other products showing a decline were corn, graphite, essential oils, raw hides, and frozen meats. Increases were noted in exports of manioc, raffia, and other fibres, mica, nuts, and oleaginous seeds, and vanilla beans.

FINANCE. The latest statistics on finance showed that actual receipts for 1924 amounted to 131,286,274 francs, and expenditures to 103,682,750 francs. The budgetary estimates for the calendar year 1925 balanced at 122,497,834 francs.

COMMUNICATIONS. In 1925, 5790 vessels of 2,149,797 tons entered and 5868 vessels of 2,143,495 tons cleared at the ports of Madagascar. The total railway mileage at the beginning of 1926 (including narrow gauge lines), was 430 miles.

GOVERNMENT. The colony is under a governor-general aided by a consultative council of administration. Governor-General in 1927, Marcel Olivier (appointed Jan. 11, 1924). Dependent upon Madagascar are the small islands of Nossi Bé, Diego Suarez, Ste. Marie, and the Comoro group.

MADGE, SIR WILLIAM THOMAS. British editor, died at Putney, England, January 29. He was born at Plymouth, England, Oct. 6, 1845. He was first employed as a bank clerk. In 1860 he entered the office of the *Western Morning News*, with which he remained until 1866, gaining experience in various departments. In August, 1866, he joined the staff of *The Globe*, in London, later becoming publisher and manager, in which capacity he was serving when he resigned in 1908 after 42 years' connection with the paper. He became identified with the paper again in 1914, as its sole proprietor. In 1881 he and Sir William Armstrong, a colleague on *The Globe*, established *The People*, a weekly, which became a popular and prosperous advocate of conservative principles. From 1904 until 1906 he managed *The Sun*, but was not so successful in this enterprise. He was made a baronet in 1919 in recognition of his public writings during the War and for his services to the Conservative party through his newspapers.

MAGNETISM. See PHYSICS.

MAINE. POPULATION. According to the fourteenth census, the population of the State on Jan. 1, 1920, was 768,014. The estimated population on July 1, 1927, was 793,000. The capital is Augusta.

AGRICULTURAL. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Potatoes	1927	142,000	32,092,000	$27,278,000
	1926	127,000	36,830,000	48,984,000
Hay	1927	1,273,000	1,555,000 [a]	19,698,000
	1926	1,285,000	1,440,000 [a]	18,958,000
Oats	1927	129,000	4,778,000	8,246,000
	1926	136,000	5,168,000	3,256,000

[a] tons.

MINERAL PRODUCTION. Production of stone, the chief mineral product of the State, was more active in 1925, the year of latest available record, attaining 361,570 short tons, as against 263,720 tons in 1924. Stone produced had a total value, in 1925, of $2,870,442; in 1924 of $2,411,938. Lime, second in importance, was produced to the quantity of 134,000 short tons, as estimated from producers' sales, in 1926, and in 1925 of 115,571 tons; in total value, $1,452,000 in 1926 and in 1925, $1,291,812. Slate production was active, reaching a total value for 1926 of $662,184; in 1925, of $604,062. Clay products and feldspar were produced in material quantities. The total value of the State's mineral products with duplications eliminated was $5,838,718 in 1925; in 1924, $6,035,160.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of general departments of the State government in the fiscal year ending June 30, 1926, were $10,306,775; their rate per capita was $13.08. They included $2,246,969 apportioned for education. Totals not included above, of $159,518 expended in public service enterprises, $734,366 in interest and $3,851,088 in permanent improvement outlays, brought the aggregate of State expenditure to $15,051,747. Of this, $5,775,518 was for highways; $2,210,426 being for maintenance and $3,565,092 for construction.

Revenue receipts were $15,097,827; or per capita, $19.16. Of their total, property and special taxes yielded 44.3 per cent, attaining a rate of $8.49 per capita. Earnings of departments and compensation paid the State for officials' services supplied 8.4 per cent of revenue; 40.2 per cent was derived from sale of licenses, chiefly on incorporated companies, motor vehicles, hunters and fishermen, and from a gasoline sale tax.

Net State indebtedness on June 30, 1926, was $17,554,054, or $22.28 per capita. Property subject to ad valorem taxation bore a valuation of $700,437,130. State taxes levied were $5,068,407, or $6.43 per capita.

TRANSPORTATION. The number of miles of railroad line in the State Jan. 1, 1927, was 2,217.73. New construction in 1927 was 0.11 mile of first track.

EDUCATION. The State compulsory education act was amended by the Legislature so as to require pupils to complete study through the eighth grade before reaching the age of sixteen years, instead of completing study through only the sixth grade. The endeavor to advance teaching proficiency was carried on through summer schools and extension courses, for both of which the enrollment was large.

CHARITIES AND CORRECTIONS. Some 51 institutions of the welfare category derive support in whole or in part from State appropriations. The State Department of Public Welfare exerts supervision over these. This body, formerly the State Board of Charities and Corrections, was changed in name in 1927. It continued to consist of a board of five members nominated by the Governor for terms of five years and receiving (since 1925) per diem compensation of $5. The department administers mothers' aid under the State law of 1917 and directs work among dependent children and children in custody. It had in September, 1927, supervision over 2061 children. The chief institutions supported wholly by State appropriation and their approximate populations in 1927 were: Augusta State Hospital, 1300; Bangor State Hospital, 900; Central Maine Sanatorium, Fairfield, 125; Northern Maine Sanatorium, Presque Isle, 125; Maine State Prison, Thomaston; Pownal State School, 625; Reformatory for Men, South Windham, 150; Reformatory for Women, Skowhegan, 150; State School for Boys, South Portland, 125; State School for Girls, Hallowell, 150; Western Maine Sanatorium, Greenwood Mountain, 125. Patients in State hospitals for mental disease on Jan. 1, 1927, according to the Department of Commerce, numbered 1918.

LEGISLATION. The Legislature convened in regular biennial session January 5. A law was enacted increasing the State tax on gasoline from 3 cents to 4 cents a gallon. The revenue expected from this increase to amount to some $700,000 a year, was granted to highway expenditure. Another important fiscal law was passed affecting the taxation of railroads. This provided a change in the existing method for assessing the excise tax on railroads; instead of their being assessed on gross receipts, the law required that the roads be assessed according to a graduated scale, on the relation of gross receipts to net income. The expected effect of the law was to relieve railroads with a high ratio of gross receipts to net. It was estimated that the State would lose $300,000 or more a year by affording this relief to the low-income earners among its railroads, and accordingly the legislators representing farm constituencies vigorously opposed the measure. Governor Brewster vetoed it, but it was repassed over his veto. A bill was enacted to enable the State to accept the terms of the Federal maternity and infancy act. A bill to incorporate the Fish River Power and Storage Company, an adjunct to projected power development by the International Paper Company on the St. John River in New Brunswick, was rejected on the ground that it would not suit the State's interest to provide water storage for a Canadian power development.

POLITICAL AND OTHER EVENTS. At a special election held October 18, a referendum proposal to repeal the State direct primary act of 1911 was defeated by a vote of about two to one. The referendum was brought about largely by former Governor Percival P. Baxter, who conducted a campaign for return to the convention system of nomination. Governor Brewster advocated the retention of the primary. Petitions for referenda on the State gasoline tax and on the amended tax on railroads failed, because of insufficiency of signers, to come to a vote. The Governor's veto of the Smith-Wyman bill for the limited export of hydro-electric power gave occasion for demand that a special session of the Legislature should be called in 1928 to enact a power bill, some interests favoring the Oakes New England compact measure. A $3,000,000 highway bridge over the Kennebec River at Bath was completed, and was opened for traffic November 15, replacing the ferry service. It was reported at Portland, October 4, that the U. S. Army would withdraw from and dismantle Fort McKinley on Great Diamond Island in Casco Bay, adding the battalion there posted to the garrison of Fort Williams. Governor Brewster and Portland interests negotiated with the Bardo group, projecting a four-day steamship service to Southampton, with the purpose of having the intended line select Portland as its terminus in the United States. The dormitory of the old State Reformatory at South Windham was burnt November 9, and the inmates were removed to the new building adjoining, then approaching completion. After ten years of protection from the hunters, moose were again hunted, starting with November 26, in Washington, Hancock, Waldo, and five other counties. It was reported at the opening of the moose season that these animals had become partly tame from long immunity, frequently straying into villages in several of the counties where they occurred in greatest number.

OFFICERS. Governor, R. O. Brewster; Secretary of State, Edgar C. Smith; Treasurer, William S. Owen; Auditor, E. D. Hayford; Attorney General, Raymond Fellows; Commissioner of Education, A. O. Thomas; Adjutant General, James W. Hanson; Chairman Public Utilities Commission, Charles E. Guerney.

JUDICIARY. Supreme Court, Chief Justice, Scott Wilson; Associate Justices, Warren C. Philbrook, Charles J. Dunn, Luere B. Deasy, Guy H. Sturgis, Charles P. Barnes, Norman L. Bassett, and William R. Pattangall.

MAINE, UNIVERSITY OF. A coeducational State institution of higher education at Orono, Me.; founded in 1862. The enrollment for the autumn of 1927 was 1369, and for the summer session of 1927, 334. There were 205 members on the faculty, distributed as follows: teaching and administration, 140; experiment station, 24; agricultural extension service, 41. The productive funds of the University amounted to $735,920.94, and the income for the year to $849,133.17. There were 85,000 volumes in the library. It was provided by the Trustees that the income from the fund of $100,000 bequeathed to the University by Thomas Upham Coe of Bangor should be devoted to a foundation for research which should have some bearing upon the development of the State. A brick dairy building, to provide for laboratory instruction in dairy husbandry and for the handling of milk, cream, and other dairy products, was under construction for the Department of Dairy Husbandry in the College of Agriculture, and the Crosby Memorial Laboratory for mechanical engineering, the gift of Oliver Crosby of the class of 1876, was completed. President, Harold Sherburne Boardman, C.E., D.Eng.

MAIZE. See Corn.

MALACCA. One of the Straits Settlements (q.v.).

MALAY STATES. See Federated Malay States.

MALDIVE ARCHIPELAGO. See Ceylon.

MALLARDITE. See Mineralogy.

MALMEDY. See Belgium under *History.*.

MALTA. An island in the Mediterranean Sea, forming along with the adjacent islands of Gozo and Comino a British colony, lying 58 miles south of Italy and 180 miles from the African coast. Area of the island of Malta, 95 square miles; total area with Gozo and Comino, 122 square miles. Population, according to the census of Apr. 24, 1921, 224,680, of whom the civil population numbered 213,024. Valletta is the chief town and port. There were 112 public schools with 224,680 pupils at the beginning of the school year 1925–26; a university with six faculties and 107 students; a lyceum for boys with 370 students; two secondary schools; and 25 technical manual schools. Farming is the principal occupation and the chief products include: Wheat, potatoes, onions, barley, tomatoes, forage, cotton, grapes and other fruits. The value of agricultural produce in 1925–26 was £898,376. Stock-raising and fisheries are also of importance. The manufactures include lace, cotton, cigarettes, and filigree. The imports normally exceed exports, although invisible items of trade such as tourist money, the importance of the island to the British navy, and as a port of call for merchant steamers, and money sent home by emigrants tend to balance the imports and exports. The imports in 1925 were valued at £4,495,966 and the exports at £1,186,153. Most of the imports come from Great Britain and British possessions. The revenue in 1925–26 was £862,246 and the expenditure, £828,725. Executive power is in the governor and commander-in-chief and legislative power in a legislature of two chambers. Governor and commander-in-chief in 1927, Gen. Sir John Du Cane (appointed Mar. 16, 1927); Prime Minister, Ugo Pasquale Mifsud. The other members of the cabinet were: Public Health, Carmelo Mifsud; Public Instruction, Rev. Enrico Dandria; Public Works, Giovanni Adami; Industry and Commerce, Enrico Mizzi; Treasury, Carmelo M. Bonnici.

MALTA (Undulant) **FEVER.** This acute, infectious disease which has been known by an unusually large number of names was first isolated through the discovery of its causal agent, the micrococcus melitensis, in the Mediterranean basin, where it is mostly transmitted by contact, usually mediate, with domestic animals and through the consumption of their raw milk. It was first recognized in the United States in 1913 and five years later Dr. Alice C. Evans of the Public Health Service showed that the causal agent was the same as that of infectious abortion in domestic animals. Of the cases of undulant fever which had occurred up to 1927 in the United States some had developed from exposure to animals (meat, milk, etc.) although in a few cases animal contagion seemed to be lacking. In the *Journal of the American Medical Association* for Feb. 12, 1927, Drs. Hull and Black gave reasons for the belief that undulant fever may often have been masked as typhoid. In 69 patients suspected of the latter but cleared of suspicion by negative Widal test, five were in all likelihood examples of undulant fever, the microörganism however being of the bovine, not human type. This common origin of the human and animal diseases was recognized officially in South Africa, Italy, Palestine, etc.

MALTZAN, mül-tsän, Adolf George Otto (Ago), Freiherr von (Baron Maltzan). German diplomat, Ambassador to the United States of America, died in an airplane accident near Scheiz, Thuringia, Germany, September 23. He was born at Klein-Varchow, Mecklenburg-Schwerin, Germany, July 31, 1877. He was christened Adolf Georg Otto, but his father contracted the initials into the nickname "Ago," and when he became of age he adopted it legally. He studied at the Universities of Bonn and Breslau, and served for a brief time in the army. In 1912 he was appointed counselor of legation at Peking, China, but when China entered the War he returned to the Foreign Office in Berlin. From 1919 to 1921 he represented the office in Estland and Letland, and from 1921 to 1922 he was ministerial director at the Foreign Office. In the latter year he became secretary of state at the Foreign Office, and in 1925 was chosen to succeed the late Dr. Otto Weidfeldt as the second German ambassador to the United States since the War. He made friends in America, and did much to restore friendship between the two countries.

MAMMALS. See Zoölogy.

MAN, Primitive. See Anthropology.

MANAGERS, CITY. See Municipal Government.

MANCHURIA, man-chōō′-rē-ȧ. A vast region is Asia, lying between the province of Chihli in China proper and the Amur River, extending eastward from the Hingan Mountains to Korea and the Usuri River; divided into the three provinces of Feng-tien, Kirin, and Heilungchiang. The total area is estimated at about 265,000 square miles and the population estimates vary from slightly under 6,000,000 to almost 30,000,000. A census completed by the research office of the South Manchuria Railway Co. in 1927 reported the population of Manchuria as 27,490,000. This is probably as nearly correct a figure as can be ascertained. Capital, Mukden, with a population of about 250,000. Other important cities are: Newchang, 65,600; Ying-K'ou, 60,000; An-tung, 74,600; and Changchun, 80,000.

The soil of Manchuria generally is of almost exhaustless fertility and it possesses immense potential resources in agriculture, timber, and mineral wealth. In 1920 the total production of north Manchuria alone was estimated at a value of $320,000,000. Soya beans, wheat, millet, and kaoliang are the principal crops raised, but the cultivation of sugar beets and the breeding of livestock are of growing importance. While industrially undeveloped, there are in the larger cities modern flour mills, bean-oil mills, soap works, sugar refineries, sawmills, distilleries, breweries, glass factories, and tanneries. Although the population of Manchuria constitutes but 6 per cent of the population of China, in 1925 Manchuria's total trade constituted 30 per cent of the total Chinese trade.

At the end of the nineteenth century Manchuria had no railways and its population was less than 2,000,000. At the end of 1927 its railways totaled nearly 4000 miles and its population over 27,000,000. Railway development has brought into Manchuria probably the greatest colonization movement that has ever taken place in history, in an area of similar size and in a similar length of time. In 1927 the total permanent migration to Manchuria was estimated at 1,000,000. Railway construction in China in 1927 was practically confined to Manchuria. Military activities and political uncertainties, combined with lack of funds, were the retarding factors. In Manchuria on the other hand, at least five principal lines had been under construction during the past two years. Among these railways is the Hulan-Hailun Railway, which is fed by the fertile valley of the Hulan River, one of the richest wheat growing regions of Manchuria. The road had been completed through Hulan to Suihua, a distance of 70 miles, but at the end of the year work was being extended 50 miles further to Hailun. Another important railway in course of construction was the extension of the existing Tahushan-Changwu branch of the Peking-Mukden Railway from Changwu to Tungliaochen. Its completion (in 1928) would bring into existence the whole southern section of the old Chinchow-Aigun project, for the construction of which an American concession was obtained in 1910 and subsequently allowed to lapse. A third line, opened September 3, is the Mukden-Hailungchen Railway, which is to be extended northward from Hailungchen to Kirin, about 90 miles.

MANDATES. See LEAGUE OF NATIONS.

MANGANESE. The manganese used in the American steel industry, and the same is true for the leading steel producing countries of the world, is largely imported. The imports of manganese ore, exclusive of those from Cuba, coming into the United States in 1926, were 347,378 long tons of metallic manganese, estimated to be equivalent to 738,000 tons of manganese ore. In 1926 the imports from Cuba were 14,112 tons of manganese ore, containing 47 per cent of manganese. In 1927, notwithstanding the reduced activity in the steel industry the United States imports from all countries, up to the end of November, amounted to approximately 554,382 tons or 276,823 tons of manganese content in ore. The main producing centres of manganese ore were India, the Caucasus, Brazil and the West Coast of Africa, while new deposits in South Africa and Australia were being worked.

Shipments of manganese ore from mines in the United States containing 35 per cent and more of metallic manganese totaled in 1927 approximately 43,600 long tons, valued at $1,142,000, according to preliminary figures compiled by the U. S. Bureau of Mines. This was a decrease of 6 per cent from the 1926 shipments, which amounted to 46,258 tons. The decrease in average value per ton of all ore shipped in 1927 was due in part to the decreased world's price of metallurgical ore and also to the decreased shipments of chemical ore, in comparison with those of metallurgical ore. The shipments of metallurgical ore amounted to 26,000 tons, valued at $416,000, while those of 1926 were 26,530 tons, valued at $379,893. The shipments of chemical ore in 1927 amounted to 17,600 tons, valued at $726,000, while those of 1926 were 19,728 tons, valued at $848,770. The quoted price of high-grade manganese ore in 1927 decreased materially in the latter part of the year. Quotations for foreign ore, crude, were approximately 33 cents per unit, whereas the average price of 1926, Atlantic seaboard, was 39 cents per unit.

The shipments of domestic ore containing from 10 to 35 per cent of manganese (ferruginous manganese ore) in 1927 were 134,000 tons, valued at approximately $609,000, as compared with 364,312 tons, valued at $1,179,429, in 1926. The domestic shipments of ore containing from 5 to 10 per cent of manganese (manganiferous iron ore) in 1927 were 1,317,000 tons, valued at $3,306,000, as compared with 835,412 tons, valued at $1,934,381, in 1926. There was a very decided increase of production of ferruginous manganese ore in Colorado in 1927, when 29,600 tons were produced, as compared with 2925 tons in 1926.

The apparent outstanding features of the year were the increase in the domestic manufacture of spiegeleisen and the increased production and consumption, relative to the production of steel, of ores having a low metallic manganese content. While the combined production of ferruginous manganese and manganiferous iron ores in 1927 differed but slightly from the production of 1926, the gross tonnage of steel produced decreased.

MANITOBA, măn'ĭtō'bȧ. The most eastern of the Prairie Provinces of Canada, situated west of the province of Ontario and Hudson Bay and east of the province of Saskatchewan, extending from the American boundary north to latitude 60°. Area, 251,832 square miles: population, according to the census of 1921, 610,188; 1926, 639,056. Capital, Winnipeg, with a population in 1921 of 179,087 (Greater Winnipeg, 230,000); Brandon, 15,359; St. Boniface, 12,821; Portage la Prairie, 6748. The movement of population in 1925 was: Births, 14,866; deaths, 5245; marriages, 4377. In 1925 there were 4028 teachers and 145,834 pupils in the 3912 public classrooms. There are 45 high schools, 9 junior high schools, 9 collegiate departments, and 11 collegiate institutes. For higher education there is the University of Manitoba at Winnipeg, with 2428 students enrolled for the full courses.

The estimated area of arable land in Manitoba is 25,000,000 acres of which about 30 per cent is under cultivation. In 1925 the mineral output consisting mainly of building material and gypsum was valued at $2,276,759. Other important resources are forests and fisheries. In August, 1926, there were 682 grain elevators in Manitoba with a capacity of 25,430,000 bushels. The revenue in 1926 was $10,870,258 and the expenditure, $10,269,869. The total funded debt on Apr. 30, 1926, $72,882,803. The railway mileage was 4585.

The government consists of a lieutenant governor appointed by the governor general of Canada and a legislative assembly consisting of 55 members elected for five years. Women have the right to vote and are eligible to parliament. Manitoba is represented in the Dominion Parliament by 6 members in the Senate and 17 in the House of Commons. Lieutenant governor in 1927, Theodore A. Burrows; prime minister, president of the council, and provincial treasurer, John Bracken; education, C. Cannon; agriculture, lands commissioner, and provincial secretary, A. Prefontaine; public works, W. R. Clubb; attorney general and minister of telephones, R. W. Craig; municipal affairs and public utilities commissioner, D. L. McLeod.

MANLY, Charles Matthews. American mechanical engineer and airplane pioneer, died at Kew Gardens, N. Y., October 16. He was born at Staunton, Va., Apr. 24, 1876, and was educated at Furman and Cornell Universities, graduating from the latter institution as a mechanical engineer, in 1898. In the same year he became chief assistant to the late Samuel P. Langley in aviation development work, and in 1901 the Langley airplane used his gasoline engine, which was of unprecedented lightness. From 1905 until his death he was vice president and chief engineer of the Manly Drive Company, of New York, and a consulting engineer for large corporations. From June to September, 1915, he was consulting engineer to the British War Office for the development of large airplanes in America, and later he served also as consulting engineer, chief inspection engineer and assistant general manager of the Curtiss Aëroplane and Motor Corporation, and member of the automotive advisory committee to the U. S. Ordnance Board. He received about 50 patents on automotive transportation, power generation, and transmission. He wrote (with Samuel P. Langley) the *Langley Memoirs on Mechanical Flight* (No. 3. vol. 27, *Contributions to Knowledge, Smithsonian Institution*) (1911).

MANOUVRIER, mâno͞o-vrĭ-ă, Léonce Pierre. French anthropologist, died at Paris, January 18. He was born at Gueret, France, June 28, 1850, and was educated in medicine at Paris, receiving his degree in 1881. In 1880 he had become an assistant at L'École des Hautes Études, of the Sorbonne, Paris, in the anthropological laboratory, and subsequently he became assistant director and director of the laboratory. Among his other activities were those of a member of the commission of hygiene and physiology of the Paris Exposition of 1900; secretary general of the Society of Anthropology of Paris since 1902; president of the section of anthropology of the French Association for the Advancement of the Sciences; president of the Psychological Society of France. He was a chevalier of the Legion of Honor. He published about 150 papers dealing with the results of his original researches in zoölogy, anthropology, ethnology, sociology, criminology and other sciences.

MANUFACTURING. See Business Review.

MANURES. See Fertilizers.

MARATHONS. See Cross-Country Running.

MARIE, Queen of Rumania. See Rumania.

MARIE CHARLOTTE AMELIE. See Charlotte, Princess.

MARIETTA COLLEGE. A non-sectarian coeducational college at Marietta, Ohio; founded in 1835. The autumn term of 1927 had a total registration of 375 students, of whom 137 were women and 238 were men. The faculty numbered 34, three new members having been added since 1926. The productive funds amounted to $1,264,000, and the income for the year to $151,911.54. The library contained approximately 92,214 volumes. The new Betsey Mills Club, containing a fully equipped women's gymnasium with swimming pool, was established as a centre for the physical education work of the young women of the college. The sum of $76,000 was subscribed towards a new men's gymnasium. The alumni contributed $5700 during 1926 through the Marietta Fund. President, Edward Smith Parsons, A.M., L.H.D.

MARINE DISASTERS. See Safety at Sea.

MARINE ENGINES. See Internal Combustion Engines; Shipbuilding.

MARITIME LAW. See International Law.

MARITIME PROVINCES. The name applied to the three Canadian provinces of Nova Scotia, New Brunswick, and Prince Edward Island (qq.v.).

MARKETING, Coöperative. See Agriculture, U. S. Department of.

MARKIEVICZ, Constance Georgine, Countess de. Irish agitator, died at Dublin, July 15. She was the daughter of the late Sir Henry and Lady Gore-Booth, of Lissadell, Ireland, and was married in 1900 to Count Casimir Dunin de Markievicz, a Pole. She was known variously as Madame and Countess de Markievicz. Her first public activity was in 1913, when she became identified with the Larkin labor movement, and later she joined the militant wing of the Sinn Fein movement, becoming one of its most fiery orators and prominent leaders. For her part in the Easter Week rising in 1916 she was sentenced to death, but the sentence was commuted to imprisonment for life. She was released at the amnesty of 1917. A year later she was elected as the first woman member of the British House of Commons, but she never took her seat. She was imprisoned on several occasions, and was released finally when the Anglo-Irish treaty was signed. She was minister for labor in the cabinet of De Valera, and was one of his staunchest supporters, suffering imprisonment again at the hands of the Irish Free State. In 1922, 1923 and 1927 she was elected a member of the Irish Parliament (the Dail Eireann) for South Dublin.

MARQUETTE UNIVERSITY. An institution of higher education under Roman Catholic direction at Milwaukee, Wis.; founded in 1907. It comprises the following departments: Arts and sciences, applied science and engineering, dentistry, law, journalism, science, conservatory of music, schools of nursing, hospital administration, business administration, and speech. The enrollment for the autumn of 1927 was 2744 regular students, distributed as follows: arts and sciences, 877; graduate school, 138; business administration, 329; dentistry, 220; engineering, 485; journalism, 137; law, 185; medicine, 342; music, 28; speech, 3. In addition there were 286 students in night courses in business administration, 16 in dental hygiene, 480 in the high school, 36 in the college of hospital administration, 219 in the music academy, 89 in the nursing courses, and 319 in teachers' courses, making a grand total of 4210 in the University. The registration for the 1927 summer session was 764. The faculty had 367 members. Endowment funds amounted to $2,604,761.57, and the income for the year to $1,055,907, from the following sources: endowment income, $148,614; tuition, $718,508; from private benefactions for increase in plant, $585; for increase of endowment, $158,101; for current expenses, $4225; miscellaneous, $25,874. Marquette University also enjoys the services of Jesuit instructors and administrative officers who receive no compensation other than maintenance. The value of their services over the cost of their maintenance for 1926–27 was estimated at $119,500. The library contained 47,150 volumes. President, the Rev. William M. Magee, S.J., M.A.

MARRIAGE AND DIVORCE. The question of a uniform marriage and divorce law continued to be agitated in the United States during the year. *The Congressional Digest* in a comprehensive discussion of the subject pointed out that there prevailed two lines of thought, the first advocating Federal enactment through a constitutional amendment, and the second State enactment of a uniform regulatory law.

Agitation along Federal lines dates back to 1884 when the first attempt was made, in the House of Representatives, to amend the Constitution to incorporate a uniform law on marriage and divorce. The movement in Congress in 1927 was headed by Senator Capper who introduced his first resolution in 1921. In the Sixty-ninth Congress (1925) Senator Capper presented his bill again, this time in amended form. The bill called for a constitutional amendment on the following lines: Congress to make uniform marriage and divorce laws, the legitimation of children, and the care of children affected by divorce. The enacting bill called for: 1. The requirement of a marriage license for marriage. 2. Minimum age for males 18, for females 16. No licenses to be granted to epileptic, feeble-minded, tubercular or syphilitic persons or first cousins, 3. Males between 18 and 21 and females between 16 and 18 must have the consent of parents or guardians. 4. Applications for marriage are to be made two weeks before the issuance of the license. 5. The lawful marriage of the father and mother of an illegitimate child shall legitimate it. 6. Divorce may be decreed on the following grounds: adultery; cruel and inhuman treatment; abandonment or failure to provide for one year; incurable insanity; conviction of an infamous crime. 7. All divorce actions must be defended. 8. The final decree may be granted after the lapse of one year only during which either party may not remarry. 9. Alimony may be decreed. 10. In providing for the children, the court shall favor the mother. Both parents may visit the children and must contribute to their support according to their ability. 11. A divorce decreed in one State shall be recognized in all States.

Demands for State action date back to 1879 when the American Bar Association established a committee to consider uniformity. The question had the attention particularly of the Commissioners on Uniform State Laws who are individuals appointed by their State executives. In 1927, each State had such commissioners and it was the purpose of the National Conference of the group "to promote uniformity in State laws on all subjects where uniformity is deemed desirable and practicable." Since its first consideration of the matter the Conference has approved a series of uniform laws affecting marriage and divorce procedure. But the question of a uniform law relating to marriage and one relating to divorce (similar to the Capper bill Commissioners and the American Bar Association. It is interesting to note what success the Commissioners on Uniform State Laws had had with certain uniform laws. The following, according to the *Congressional Digest*, have been adopted by the States mentioned:

1. *Desertion and Non-Support Act.* Alabama (1915), Delaware (1913), Illinois (1915), Kansas (1911), Massachusetts (1911), Mississippi (1920), Nevada (1923), New Jersey (1917), North Dakota (1911), Texas (1913), Utah (1915), Vermont (1915), Virginia (1915), West Virginia (1917), Wisconsin (1911), Wyoming (1915).
2. *Divorce Procedure Act.* Delaware (1901), Wisconsin (1901).
3. *Annulment of Marriage and Divorce Act.* Delaware (1907), New Jersey (1907), Wisconsin (1909).
4. *Marriage Evasion Act.* Illinois (1915), Louisiana (1914), Massachusetts (1913), Vermont (1912), Wisconsin (1915).
5. *Divorce Statistics Act.* Louisiana (1913).
6. *Marriage Statistics Act.* Louisiana (1908).
7. *Marriage and Marriage License Act.* Massachusetts (1913), Wisconsin (1917).
8. *Migratory Divorce Act.* Wisconsin (1917).

The debate during the year was earnest and there was manifested the strange spectacle of the conservatives and radicals attacking the Capper proposal. It was generally agreed that there were fine things in the Capper amendment, that the grounds for divorce ought to be increased, and that a divorce granted in one State ought to be recognized in all others. But the objections were fundamental: the bill was not honest in that it did not recognize collusive divorce (i.e. where both parties agree on their incompatibility), and its danger was the difficulty of passage and the difficulty of further amendment. It was pointed out that Federal amendments like the Fourteenth, Fifteenth, and Eighteenth have had an unhappy history in that they were not based on general public sentiment. The radicals, it was pointed, would rather work in the States, and, by pressure on legislatures, pass divorce laws that they consider honest. In short, in 1927, they would rather have the whole or nothing, and the whole means complete separation of husband and wife if they agree they are no longer mated.

STATISTICS. The U. S. Census Bureau reported that for the year 1926 there were 1,020,079 marriages in the United States and there were 180,868 divorces. Marriages increased 13,745 or 1.2 per cent over 1925. The increase in divorces for the year was 5419 or 3.1 per cent. Annulment figures, gathered for the first time, showed 3823 annulled marriages for 1926. For 1926 the number of marriages per 1000 of population was 10.26 as against 10.30 in 1925. The number of divorces in 1926 was 1.54 per 1000 population as against 1.52 in 1925. Marriages and divorces are of course affected by changes in law. Thus, Michigan's marriages decreased 14 per cent because of the enactment of a law requiring a five days' waiting period while Nebraska's marriages increased 19.5 per cent because of the repeal of a similar law. The marriage rates show a wide range in the individual States. Delaware's rate per 1000 population in 1926 was 4.6 and Wisconsin's 5.8 to 16.35 for Maryland and 21.6 in Florida. Di-

TABLE I—MARRIAGES IN THE UNITED STATES, 1925–26

Division and State	*1926*	*1925*	*Per cent of increase* [a]	*Number per 1,000 of the population*	
				1926	*1925*
United States	1,202,079	1,188,334	1.2	10.26	10.30
New England:					
Maine	6,376	6,224	2.4	8.1	7.9
New Hampshire	4,620	4,571	1.1	10.2	10.1
Vermont	2,805	2,972	– 5.6	8.0	8.4
Massachusetts	30,584	31,238	– 2.1	7.3	7.5
Rhode Island	5,329	5,635	– 5.4	7.7	8.3
Connecticut	12,285	12,269	0.1	7.6	7.8
Middle Atlantic:					
New York	120,965	115,296	4.9	10.7	10.3
New Jersey	28,424	27,672	2.7	7.72	7.69
Pennsylvania	72,222	71,093	1.6	7.51	7.50
East North Central:					
Ohio	54,652	52,317	4.5	8.3	8.1
Indiana	40,409	36,828	9.7	12.9	11.9
Illinois	82,529	79,964	3.2	11.5	11.3
Michigan	39,788	46,276	– 14.0	9.1	10.8
Wisconsin	16,654	16,094	3.5	5.8	5.7
West North Central:					
Minnesota	23,713	23,654	0.2	8.9	9.1
Iowa	20,966	21,924	– 4.4	8.7	9.1
Missouri	37,722	38,949	– 3.2	10.8	11.2
North Dakota	3,958	4,377	– 9.6	6.2	6.8
South Dakota	6,004	6,589	– 8.9	8.7	9.7
Nebraska	9,662	8,085	19.5	7.0	5.9
Kansas	20,253	20,867	– 2.9	11.1	11.5
South Atlantic:					
Delaware	1,109	1,206	– 8.0	4.6	5.1
Maryland	25,831	25,447	1.5	16.35	16.31
District of Columbia	5,514	5,653	– 2.5	10.4	11.0
Virginia	21,345	21,686	– 1.6	8.5	8.7
West Virginia	18,275	17,724	3.1	10.9	10.8
North Carolina	22,691	23,337	– 2.8	7.9	8.3
South Carolina	23,971	22,863	4.8	13.1	12.7
Georgia	28,484	28,095	1.4	9.07	9.06
Florida	28,446	25,169	13.0	21.6	19.9
East South Central:					
Kentucky	28,585	28,202	1.4	11.3	11.2
Tennessee	32,692	33,375	– 2.0	13.2	13.6
Alabama	30,101	29,706	1.3	11.92	11.89
Mississippi	28,712	28,212	1.8	16.0	15.8
West South Central:					
Arkansas	28,250	29,134	– 3.0	14.8	15.5
Louisiana	20,756	20,252	2.5	10.8	10.7
Oklahoma	27,276	27,888	– 2.2	11.6	12.2
Texas	69,899	69,738	0.2	13.2	13.4
Mountain:					
Montana	5,183	5,000	3.7	7.5	7.4
Idaho	4,404	4,194	5.0	8.4	8.3
Wyoming	1,911	1,936	– 1.3	8.1	8.4
Colorado	11,957	11,602	3.1	11.3	11.2
New Mexico	4,476	4,284	4.5	11.5	11.2
Arizona	4,077	3,922	4.0	9.162	9.164
Utah	5,427	5,688	– 4.6	10.6	11.3
Nevada	1,228	1,122	9.4	15.9	14.5
Pacific:					
Washington	17,810	17,941	– 0.7	11.6	11.9
Oregon	7,085	6,989	1.4	8.08	8.09
California	56,664	55,080	2.9	13.1	13.2

[a] A minus sign denotes decrease.

TABLE II—DIVORCES AND ANNULMENTS IN THE UNITED STATES, 1925–26

Division and State	*Divorces*					*Annulments*	
	1926	*1925*	*Per cent of increase* [a]	*Number per 1,000 of population*		*1926*	*Number per 1,000 of population*
				1926	*1925*		
United States	180,868	175,449	3.1	1.54	1.52	3,823	0.033
New England:							
Maine	1,213	1,230	– 1.4	1.54	1.56	13	0.016
New Hampshire	608	655	– 7.2	1.34	1.45	9	0.020
Vermont	397	362	9.7	1.13	1.03	4	0.011
Massachusetts	3,307	3,332	– 0.8	0.79	0.80	66	0.016
Rhode Island	702	692	1.4	1.01	1.02	1	0.001
Connecticut	1,232	1,231	0.1	0.77	0.78	17	0.011
Middle Atlantic:							
New York	4,674	4,611	1.4	0.4135	0.4131	964	0.085
New Jersey	2,544	2,338	8.8	0.69	0.65	63	0.017
Pennsylvania	7,706	8,027	– 4.0	0.80	0.85	34	0.004
East North Central:							
Ohio	13,976	13,666	2.3	2.12	2.11	48	0.007
Indiana	7,685	7,463	3.0	2.46	2.41	82	0.026
Illinois	14,125	13,822	2.2	1.96	1.95	204	0.028
Michigan	9,648	9,541	1.1	2.19	2.23	101	0.023
Wisconsin	2,386	2,401	– 0.6	0.83	0.84	44	0.015
West North Central:							
Minnesota	2,784	2,673	4.2	1.05	1.02	21	0.008
Iowa	4,080	4,112	– 0.8	1.68	1.70	22	0.009
Missouri	9,836	9,438	4.2	2.81	2.71	35	0.010
North Dakota	483	439	10.0	0.75	0.68	6	0.009

TABLE II—DIVORCES AND ANNULMENTS IN THE UNITED STATES—*Continued*

Division and State			*Divorces*			*Annulments*	
	1926	*1925*	*Per cent of increase* [a]	*Number per 1,000 of population* *1926*	*1925*	*1926*	*Number per 1,000 of population*
South Dakota	589	686	– 14.1	0 85	1.01	8	0.012
Nebraska	1,395	1,336	4.4	1.01	0.97	39	0.028
Kansas	3,780	3,521	7 4	2.08	1.94	15	0.008
South Atlantic:							
Delaware	202	207	– 2.4	0.84	0.87	3	0.013
Maryland	1,888	1,614	16.7	1.19	1.03	7	0.044
District of Columbia	96	156	– 39.2	0.18	0.31	22	0.042
Virginia	2,998	3,015	– 0.6	1.19	1.21	19	0.008
West Virginia	1,998	1,918	4.2	1.20	1.17	44	0.026
North Carolina	1,591	1,576	1.0	0.557	0.560	20	0.007
South Carolina	....	....	..	...	...	10	0.005
Georgia	2,161	2,056	5.1	0.69	0.66	37	0.012
Florida	4,012	3,187	25.9	3.05	2.52	9	0.007
East South Central:							
Kentucky	4,510	4,164	8.3	1.79	1.66	7	0.003
Tennessee	4,679	4,511	3.7	1.90	1.84	14	0 006
Alabama	3,503	3,428	2.2	1.39	1.37	17	0.007
Mississippi	2,766	2,894	– 4.4	1.54	1.62	..	....
West South Central:							
Arkansas	4,741	4,750	– 0 2	2.49	2.53	13	0.007
Louisiana	1,856	1,795	3.4	0.97	0.94	12	0.006
Oklahoma	7,398	7,242	2 2	3.159	3.157	130	0.056
Texas	15,465	15,120	2.3	2.91	2.90	103	0.019
Mountain:							
Montana	1,277	1,206	5.9	1.84	1.79	15	0.022
Idaho	921	919	0.2	1.76	1.81	21	0.040
Wyoming	645	688	– 6.3	2.73	3.00	7	0.030
Colorado	2,288	2,248	2.0	2.161	2.156	74	0.070
New Mexico	537	558	– 3.8	1.38	1.45	7	0.018
Arizona	876	877	– 0.1	1.97	2.05	10	0.022
Utah	1,011	1,029	– 1.7	1.97	2.04	38	0.074
Nevada	1,021	1,082	– 5.6	13.19	13.98	20	0.258
Pacific:							
Washington	4,134	4,126	0.2	2.69	2.73	51	0 033
Oregon	3,084	2,886	6.9	3.52	3.34	35	0.040
California	12,065	10,624	13 6	2.80	2.54	1,282	0.297

[a] A minus sign denotes decrease.

greatly. The rate was 0.18 per 1000 in the District of Columbia and 0.41 in New York, as against 3.52 in Oregon and 13.19 in Nevada. The tables accompanying show the number of marriages and divorces with per cent increase and rates per 1000 population. Annulments are included in the divorce table.

Divorce Secrecy. During the year both Great Britain and the State of Delaware passed laws making it illegal to give publicity to divorce proceedings. It is interesting to note that France has had such a law since 1886. Delaware's law was passed late in 1926 and put into operation in the summer of 1927. It prohibits the presence of newspapermen or spectators at divorce proceedings. While there was general agreement that many metropolitan newspapers, in recording in full divorce proceedings, were overstepping the bounds of ordinary decency, the presence of such laws as England's and Delaware's was greeted with misgivings. Secrecy, it was pointed out, would lead to many frivolous matches because of the feeling that a divorce action would be comparatively painless. Point was given to this objection by the fact that there had been a 50 per cent increase in undefended divorce actions in England since the law's passage. However, such figures are misleading. It may be that persons, separated and not living together any more but yet timid about instituting a divorce action because of unwelcome publicity, took advantage of the secrecy offered by the law. Again, a sufficiently long period has not yet elapsed to indicate a trend. Finally, a larger number of persons are saying every year that marriage and divorce are private matters.

Companionate Marriage. This subject, largely stimulated by the book of the same name written by Judge Ben B. Lindsey and Wainwright Evans, was much in the public mind at the end of the year. Judge Lindsey, from his experience on the bench in Denver, arrives at the conclusion that there is much wanting in our present marriage and divorce laws. He advocates laws that will permit a childless couple to separate if they find marriage uncongenial. Companionate marriage stands for childless marriage to be dissolved by mutual consent, in Judge Lindsey's meaning. The implications of the term were evidently misunderstood, for people began to talk of contracting "companionate marriages," failing to grasp that under the law the marriage tie was quite binding, under any name. It is not likely, of course, that at the present time the various States will amend their marriage codes to permit of the dissolution of a marriage by collusion.

MARRIAGE RESTRICTIONS. See Child Welfare.

MARSHALL, Charles Edward. American microbiologist, died at Amherst, Mass., March 26. He was born near Port Clinton, Ohio, Oct. 6, 1866. He graduated at the University of Michigan, and studied bacteriology at Copenhagen, Paris and Berlin. From 1893 to 1896 he was assistant in bacteriology at the University of Michigan, and from 1896 to 1912 he was, successively, assistant in bacteriology, bacteriologist, scientific and vice-director of the experiment station, and professor of bacteriology and hygiene, at Michigan Agricultural College. From 1912 until his death he was director of the graduate school and professor of microbiology at the Massachusetts Agricultural College. He was president of the Society of American Bacteriologists in 1914. He wrote many pamphlets, articles and bulletins on bacteriology and hygiene.

MARSHALL, Henry Rutgers. American architect and psychologist, died at New York, May 2. He was born at New York, July 22, 1852. He graduated at Columbia University in 1873, and from 1878 until his death was a practicing architect in New York, combining with that profession such varied activities as that of lecturer on æsthetics at Columbia, Yale and Princeton Universities, writer of books on æsthetics, psychology and other subjects, and executive secretary of the Municipal Art Commission of the City of New York. In 1920 he received the Nicholas Murray Butler medal, awarded annually for the year's most distinguished contribution to philosophy or to educational theory, for his book, *Mind and Conduct.* Rutgers University conferred on him the honorary degree of L.H.D. in 1903, and Hobart College that of D.Sc. in 1910. He was president of the New York chapter of the American Institute of Architects, 1902–04, and president of the American Psychological Association, 1907. He wrote: *Pain, Pleasure and Æsthetics* (1894); *Æsthetic Principles* (1895); *Instinct and Reason* (1898); *Consciousness* (1900); *War and the Ideal of Peace* (1915); *Mind and Conduct* (1919); *The Beautiful* (1924).

MARTIN, VICTORIA CLAFLIN WOODHULL. American author and editor and pioneer in the woman suffrage cause, died at Norton Park, Bremons, Worcestershire, England, June 9. She was born at Homer, Ohio, Sept. 23, 1838. She made her home in England for 50 years before her death. From 1870 until 1877, the year of their removal to London, she and her sister, Tennessee Claflin (later Lady Francis Cook), were two of the most prominent women in America, winning much notice by their advocacy of woman's suffrage, spiritualism, a single standard of morality for the two sexes, and other causes. Victoria Claflin had been married, when she was 14, to Dr. Canning Woodhull, but the marriage had proved unhappy and there had been a separation. In 1866 she had become the wife of Col. James H. Blood, but this marriage had also been unsuccessful and had been terminated by divorce. In 1870, Mrs. Woodhull, as she was known, and her sister formed in New York a brokerage firm called Woodhull, Claflin & Co. It prospered, and so did a weekly magazine published by the sisters for several years with the name *Woodhull & Claflin's Weekly.* In 1870 Mrs. Woodhull, who was deeply interested in the cause of woman's suffrage, memorialized Congress in its behalf. In 1871 she was nominated for the House of Representatives, and both sisters tried to vote in New York. Both had become mediums and clairvoyants, and Mrs. Woodhull was elected president of the National Association of Spiritualists in 1871. In May, 1872, she was nominated for President of the United States by the Equal Rights party. In December of that year she and her sister were arrested on a charge of sending improper matter through the mails in their weekly; the article criticized dealt with the Beecher-Tilton case. They were acquitted in June, 1873. Four years later, Mrs. Woodhull went to England and become the wife of the late John Biddulph Martin (died 1895), a London banker. Mrs. Martin appeared in recent years as a benefactor of the Sulgrave Institute, to which she presented Sulgrave Manor, the ancestral home in England of the Washington family, and as a patroness of aviation. In 1914 she offered a prize of $5000 for a trans-Atlantic flight. She wrote several books on social subjects.

MARTINIQUE, mär'tenek'. One of the Lesser Antilles group of the West Indies, forming a colony of France. Area, 385 square miles; population, according to the census of 1921, 244,439. Capital and chief port, Fort-de-France, with a population of 26,309. Sugar, rum, cacao, coffee, tobacco, pineapples, and bananas are the chief products of the colony. The foreign trade of Martinique in 1926 amounted to $14,183,609, a decrease of $1,671,022 from that of 1925, which was $15,854,631. The year's trade was not only lower than that of the two previous years, but it was the first year since 1918 that Martinique had had an unfavorable balance, imports exceeding exports by $106,000. Sugar and rum comprise the chief exports of Martinique. The production of sugar in 1926 amounted to 45,039 long tons as compared with 48,122 long tons in 1925. Rum production in 1926 was 27,400,960 liters as compared with the 25,933,469 liters produced in 1925. The unfavorable situation was attributed in large part to the adverse exchange rates of the franc throughout part of the year, which raised the franc values of goods imported from countries other than France, and to the general rise in prices in the French markets from which the bulk of Martinique's imports come. The colony is administered by a governor and a general council, and an elected municipal council; it sends one senator and two deputies to the French Parliament.

MARTINY, mär-tē'nĭ, PHILIP. American sculptor, died at New York, June 26. He was born in Alsace (then French), May 19, 1858, and studied sculpture under Eugene Dock. He went to the United States in the early eighties and entered the studio of the late Augustus Saint-Gaudens. He did much to raise the standard of decorative sculpture in the United States. His conceptions are original and spontaneous, his execution skillful, his modeling simple yet rich. Among his best known decorative works are the sculpture for the grand staircase of the Congressional Library, Washington, D. C.; for the Carnegie Library, Washington, and for the Hall of Records, New York; the bronze doors of St. Bartholomew's Church, New York; two groups in the Chamber of Commerce, New York; and figures and a fountain for the former residence of the late Senator William A. Clark in New York. Among his monumental works are the soldiers' and sailors' monument, Jersey City, N. J.; the McKinley monument, Springfield, Mass.; the monument to Admiral de Gernay, Newport, R. I., the portrait statue of Vice President Hobart, Paterson, N. J.; and the World War memorials in Chelsea Park and Abingdon Square, New York.

MARYLAND. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,449,661. The estimated population on July 1, 1927, was 1,597,000. The capital is Annapolis.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	515,000	22,660,000	$18,128,000
	1926	554,000	22,049,000	14,111,000
Wheat, winter	1927	525,000	9,188,000	11,669,000
	1926	520,000	11,960,000	15,548,000
Hay	1927	446,000	728,000[a]	11,206,000
	1926	400,000	521,000[a]	10,890,000

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Tobacco	1927	32,000	26,176,000 [b]	4,973,000
	1926	31,000	26,040,000 [b]	6,171,000
Potatoes	1927	43,000	5,246,000	5,508,000
	1926	39,000	3,510,000	4,914,000
Sweet potatoes	1927	11,000	1,584,000	1,109,000
	1926	11,000	1,815,000	1,361,000

[a] tons, [b] pounds.

Mineral Production. Coal mining, chiefly in Allegany County, contributed about one-third to the total value of the State's mineral products. There were mined in 1926, 3,078,353 net tons of bituminous coal; in 1925, 2,694,572 tons. The product was valued at $6,800,000 for 1926 and for 1925 at $5,312,000. There were produced in by-product coke ovens 1,120,610 short tons of coke in 1926; in 1925, 1,019,209 tons. Clay products attained for 1925, the year of latest available record, a total value of $2,868,452; for 1924, of $3,973,074. Sand and gravel and stone were produced in important quantities. The total value of the State's mineral products, duplications eliminated, was $21,557,810 in 1925; in 1924, $18,506,867.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $16,979,570; their rate per capita was $10.78. They included $3,373,727 apportioned for education. Totals not included above, of $151,313 expended in public service enterprises, $1,442,810 in interest and $4,330,791 in permanent improvement outlays, brought the total of State expenditures to $22,903,484. Of this $7,129,007 was for highways; $3,548,238 being for maintenance and $3,580,769 for construction.

Revenue receipts were $23,218,243; or per capita, $14.74. Of their total, property and special taxes yielded 31.1 per cent, attaining a rate of $4.58 per capita. Earnings of departments and compensation paid the State for officials' services supplied 17.9 per cent of revenue; 37.4 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a sale tax on gasoline.

Net State indebtedness on Sept. 30, 1926, was $22,491,478, or $14.28 per capita. Property subject to ad valorem taxation bore a valuation of $2,188,965,190. State taxes levied were $5,545,401, or $3.52 per capita.

Transportation. The total number of miles of railroad line in the State Jan. 1, 1927, was 1,446.63. There were constructed in 1927, 11.50 miles of new second track.

Education. The Teachers' Retirement system of the State, as reported to the *Journal* of the National Education Association, was established on a basis of a fund to which teachers and the State were to contribute equally. Retirement with benefit of pension from the fund became possible at 60 years of age, and compulsory at 70. It carried an allowance equal to half salary for those retiring after 35 years of service. Disability and death benefits were also provided.

Charities and Corrections. The State Department of Welfare includes a Board of Welfare, administering the Maryland Penitentiary and House of Correction. Other branches have authority over four State hospitals, a training school and activities in mental hygiene. A second department, the Department of State Charities, deals with State aid to public and private institutions, and enforces laws as to children, including a law to prevent the separation of babies from mothers. This department has under it the three State tuberculosis sanitaria. The chief State institutions are: Maryland Penitentiary, Baltimore; House of Correction, Jessups; Crownsville State Hospital; Eastern Shore State Hospital, Cambridge; Rosewood State Training School, Owings Mills; Spring Grove State Hospital, Catonsville; Springfield State Hospital, Sykesville; Maryland Tuberculosis Sanatorium, at Sanatorium, Md.; Maryland School for the Deaf and Dumb, Frederick; Maryland Training School for Boys, Loch Raven; Montrose School for Girls, Woodensburg. A State system of parole for prisoners in the Penitentiary and the House of Correction was administered by a Parole Commissioner, who reported that 196 paroles had been recommended for issue by the Governor in 1926, and that 166 had been recommended in 1927, up to December 11.

Legislation. The State Legislature convened in regular biennial session January 5. Governor Ritchie in his message urged the restriction of the number of laws to be passed, recommended that Congress be memorialized to repeal the Federal estate tax, opposed raising State inheritance taxes in Maryland, and suggested increasing the State gasoline tax to 4½ cents from 2½ cents. A bill for the compulsory insurance of owners of motor vehicles against liability for damages caused, up to a maximum of $10,000 for deaths and of $1000 for property damage, or, as an alternative, certification by the State Insurance Commissioner of the owner's financial responsibility in the requisite amount, was introduced. The House, by vote of 93 to 17, rejected the proposed Child Labor amendment to the Federal Constitution. The Legislature ratified an interstate stream conservation agreement with Pennsylvania that had been executed in November, 1926, to promote the maintenance of sanitary conditions in streams.

Political and Other Events. Governor Ritchie, succeeding himself, was inaugurated January 12. An explosion and fire at the United States Army ammunition depot at Curtis Bay occurred September 23, and led to renewal of the efforts of Baltimore interests to have this depot removed. Four Federal prohibition agents were indicted under State law in September for the murder of a farmer near Leonardtown who had been killed while opposing a search of his premises without warrant. A Federal judge removed them from State jurisdiction by writ, arousing controversy over the conflict of judicial jurisdictions. The State Public Service Commission allowed the purchase of the Washington, Baltimore and Annapolis Railway, with its power and light subsidiary, by the Consolidated Gas and Electric Company. The State Conservation Commission gave notice in August that the law requiring the replanting of oysters would be enforced against persons seeking permits to take oysters away. The construction of the Conowingo hydro-electric plant on the Susquehanna River, four miles above tidewater, was reported near the end of the year as approaching completion.

At the municipal election of May 3, William Broening, a Republican and former mayor, was elected Mayor of Baltimore, by a majority of about 17,400 votes, over the Democratic candidate, William Curran. Direct weekly steamship passenger service between Baltimore, Jacksonville and Miami was inaugurated at the end of November.

Officers. Governor, Albert C. Ritchie; Secretary of State, David C. Winebrenner, 3d; Treasurer, J. M. Dennis; Auditor, L. M. Milbourne; Comptroller, William S. Gordy, Jr.; Attorney General, T. H. Robinson; Superintendent of Schools, Albert S. Cook.

Judiciary. Court of Appeals: Chief Judge, Carroll T. Bond; Associate Judges: John R. Patterson, T. Scott Offutt, Wm. H. Adkins, Francis N. Parke, Hammond Urner, W. M. Digges, D. Lindley Sloan.

MARYLAND, University of. An institution of higher education at College Park and Baltimore, Md.; founded in 1807. The enrollment for the autumn term of 1927 was 3254, distributed as follows: agriculture, 121; arts and sciences, 541; dentistry, 369; education, 133; engineering, 231; graduate school, 75; home economics, 54; pharmacy, 358; law, 296; medicine, 391; nursing, 113. The enrollment for the 1927 summer school, held at College Park, was 572. The faculty in 1927 numbered 481. The total income from appropriations and other receipts amounted to $2,162,729.51. The library contained 49,065 volumes. During the year a new dining room and a science building were completed; and in addition, the campus was landscaped and new roads and walks were laid. President, Raymond A. Pearson, M.S., D.Agr., LL.D.

MASSACHUSETTS. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 3,852,356. The population by the State census of 1925, was 4,144,205. The estimated population on July 1, 1927, was 4,242,000. The capital is Boston.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	479,000	687,000[a]	$14,341,000
	1926	488,000	606,000[a]	14,377,000
Potatoes	1927	14,000	1,400,000	2,170,000
	1926	18,000	2,015,000	3,627,000
Corn	1927	46,000	1,886,000	2,263,000
	1926	45,000	1,980,000	2,277,000
Tobacco	1927	7,100	8,683,000[b]	3,213,000
	1926	6,500	9,412,000[b]	3,294,000
Cranberries	1927	13,900	370,000[c]	....
	1926	13,900	430,000[c]	....

[a] tons, [b] pounds, [c] barrels.

Mineral Production. Stone, the chief article of the State's mineral industry, was produced in the quantity of 2,209,560 short tons in 1925, attaining a considerable increase over the production of 1924, 1,936,520 tons. The stone produced in 1925 was valued at $6,640,333, that in 1924 at $6,063,048. Clay products had a value of $3,789,164 for 1925 and of $3,859,253 for 1924. Lime production, as estimated on producers' sales, was 187,000 short tons in 1926, and in 1925, 197,732 short tons; the value of the product, $2,263,000 for 1926 and for 1925, $2,610,279. Sand and gravel and coke in fairly important quantities were produced. The total value of the State's mineral products, duplications eliminated, was $16,831,529 in 1925; in 1924, $15,725,882.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Nov. 30, 1926, were $39,300,021; their rate per capita was $9.37. They included $2,119,725 apportioned for education. Totals not included in the above, of $163,816 expended in public service enterprises, $1,691,982 in interest and $6,290,927 in permanent improvement outlays, brought the total of State expenditure to $47,446,746. Of this, $11,091,068 was for highways; $6,954,318 being for maintenance and $4,136,750 for construction.

Revenue receipts were $55,296,327; or per capita, $13.19. Of their total, property and special taxes yielded 46.7 per cent, attaining a rate of $6.16 per capita. Earnings of departments and compensation paid the State for the services of officials supplied 6.3 per cent of revenue; 29.8 per cent was derived from sale of licenses, chiefly for incorporated companies and motor vehicles.

Net State indebtedness on November 30, 1926, was $23,867,747, contingent debt excluded, or $5.69 per capita. Property subject to ad valorem taxation bore a valuation of $6,905,037,771. State taxes levied were $12,000,000, or $2.86 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 2,019.02. There were constructed in 1927 according to the *Railway Age* 3.54 miles of new third track.

Education. A law went into effect whereunder a city or town must establish a special class for the mentally retarded in case an examination made by the State division of mental deficiency determined that such city or town had 10 or more children of school age who were mentally retarded to the extent of three years or more. The estimated school population of the State in 1927 was 840,263. There were enrolled in the public schools 729,529 pupils. Of these, 595,645 were in the common schools and 133,884 in the high schools. The expenditure for public school education, including outlay, was $78,413,846. The average of the salaries of teachers, elementary and high, men and women, in 1926 was $1606.

Charities and Corrections. The Department of Public Welfare, as functioning in 1927, consisted of a Commissioner, Richard K. Conant, and of an advisory board of six members. It had organized divisions of Aid and Relief, of Child Guardianship and of Juvenile Training. It administered aid under the mothers' aid law and aid to persons without legal settlement; cared for dependent, delinquent and neglected children; supervised housing and town planning, private charitable corporations, almshouses, maternity hospitals, and boarding homes for infants. State aid given to some 70,000 persons in the course of 1927 occasioned a total expenditure of $5,000,000 approximately. In 1926, 3440 mothers and 10,244 children were assisted under the mothers' aid law. Minor wards in State custody Dec. 1, 1927, numbered 5600, and there were 3016 children on parole from the three State training schools. The State Infirmary, Tewksbury, had, December 1, a population of 2338; Massachusetts Hospital School, Canton, 278; Lyman School for Boys, Westborough, 480; Industrial School for Girls, Lancaster, 279; Industrial School for Boys, Shirley, 277. State penal and reformatory institutions received in

1926, according to the U. S. Department of Commerce, 818 prisoners.

LEGISLATION. The Legislature convened in regular annual session January 5, and adjourned April 28. It enacted a measure creating a tax of 2 cents a gallon on gasoline sold for motor vehicle fuel. An amendment of the law passed by the previous Legislature, as to professional bail bondsmen, which would have increased from three to 10 the number of instances of service in this capacity causing bondsmen to rank as professionals, was vetoed by the governor. There was passed a measure for the purchase of radium for State institutions. Bills bearing on the Sacco-Vanzetti case (q.v.), one to empower the Supreme Judicial Court to reconsider the case and another to authorize the governor to appoint a commission to consider a pardon appeal, were rejected. Salaries of Supreme Court judges were raised from $12,000 to $15,000; those of Superior Court judges, from $10,000, were raised to $13,000. The automobile registration fee was reduced to a flat $3. A recess committee of seven legislators to recommend changes in the State election law was created. Provision was made for an increase of 60 members in the State police patrol. The poor debtor law was revised by an act to provide for supplementary proceedings in civil actions. This act rendered it possible to sue the debtor not only in the county within which he resided, but also in the judicial district in which he was employed. The $20 limit, the former minimum for debt suits, was removed, and power was conferred on the courts to order installment payments from the debtor's salary.

POLITICAL AND OTHER EVENTS. The Sacco-Vanzetti Case (q.v.) was terminated August 23 by the execution of the two defendants, who were put to death by the electric chair in Charlestown prison, after Governor Fuller had reviewed their case and had refused clemency. The Bar Association of the City of Boston appointed a committee to inquire whether any changes in the legal procedure of the State were advisable, in view of the record of this case, and particularly in view of its long duration over the period of six years. Governor Fuller, inaugurated January 6, in his inaugural address questioned the wisdom of continuing the system of pensioning State employees, and urged numerous governmental economies. The Pondville State cancer hospital, between Walpole and Wrentham, was opened June 21. With regard to the coal situation, which had been causing hardship in the State for a number of years, a State commission on the necessaries of life recommended, January 12, that a body be created to examine coal fields said to underlie some 500 square miles of southeastern Massachusetts, and to get definite data on the amount and quality of the coal there situated, as a means of domestic supply. Two petitions were circulated in September by rival agencies for a referendum to ask the State's delegation in Congress to work for the repeal of the Eighteenth Amendment, but the referendum did not come to a vote in November.

A petition of 24,443 names for repeal of the amendment was filed, December 7. The notorious "get-rich-quick" operator, Charles Ponzi, who had long fought extradition to Massachusetts, after having jumped his bail, was brought to Boston, and was sentenced to from seven to nine years of prison on February 15. The Boston authorities in March proscribed as indecent nine current books of the season. In April Sinclair Lewis's *Elmer Gantry* was added to the blacklist. A test case was made of *An American Tragedy*, by Theodore Dreiser, published by Boni and Liveright. D. Friede was fined $100 on April 22, for offering the work in Boston.

Late in the year there occurred some resumption of the removal of manufacturing plants from the State. The Appleton Manufacturing Company announced October 31 that it had determined to remove 30,000 or more spindles and 900 looms from its cotton mills at Lowell to buildings to be erected at Anderson, S. C., the change to cost $780,000. Of the equal or greater amount of equipment not to be removed from Lowell it was predicted by the president of the company that part at least would be sold out. Another Lowell concern, the Pepperell Manufacturing Company, at the same time announced a 10 per cent wage reduction. Inability of the companies to meet taxes from revenue was alleged in both cases.

The State of Connecticut opposed the diversion of water from the Swift River, as provided by act of the Massachusetts legislature, for increasing the supply of the Boston water system.

OFFICERS. Governor, A. T. Fuller; Lieutenant Governor, F. G. Allen; Secretary of State, F. W. Cook; Treasurer, W. S. Youngman; Auditor, A. B. Cook; Attorney General, Arthur K. Reading; Commissioner of Education, Payson Smith; Commissioner of Public Welfare, Richard K. Conant.

JUDICIARY. Supreme Court: Chief Justice, Arthur Prentice Rugg; Associate Justices: Henry King Braley, John Crawford Crosby, Edward Peter Pierce, James Bernard Carroll, William C. Waite, George A. Sanderson.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. A non-sectarian institution for technical education at Cambridge, Mass.; founded in 1861. The enrollment for the autumn of 1927 was 2712, including 374 graduate and 25 unclassified students. For the summer session the registration was 1448. There were 199 members on the faculty, and 268 others on the staff of the Institute. The productive funds amounted to $29,400,000, and the income for the year to $3,010,000, from various sources, as follows: funds, $1,599,000; student fees, $894,900; miscellaneous, $515,000. The book value of land and buildings in Boston and Cambridge was $12,654,000. The library contained 240,000 volumes. An infirmary and two dormitories were under construction. President, Samuel Wesley Stratton, D.Eng., D.Sc., Ph.D., LL.D.

MATERNITY PROTECTION. The chief of the U. S. Children's Bureau, Miss Grace Abbott, under whose supervision the Federal maternity and infancy act is operated, reported for 1927 the addition of Kansas and Maine to the roll of States accepting Federal aid. Thus, to that time, all the States but Massachusetts, Connecticut, and Illinois were coöperating in the protection of mothers and infants. The amounts available to the States and Hawaii from Federal maternity and infancy funds were as follows: maximum amount available from 1922 appropriations, $477,500; amounts accepted by States from 1922 appropriation, $316,554.02; maximum amounts available from 1923, 1924, 1925, 1926, and 1927 appropriations, $1,201,725.96. The amounts accepted by the States and Hawaii from yearly appropriations were as follows: 1923 appropriations, $716,333.40; 1924 appropriation, $877,122.04; 1925 appropriation, $932,754.69; 1926 appropriation, $949,646; 1927 appropriation, $904,824.71.

During the fiscal year 1927, in 44 States and Hawaii 1808 combined prenatal and child-health conferences were held, 21,347 child-health conferences, and 3231 prenatal conferences. It was estimated that the number of expectant mothers reached by this work was 161,000, and that the number of infants and preschool children reached was 1,034,000. The year marked a further growth of permanent local agencies. In 1927, 70 local combined prenatal and child-health centres were established, 235 child-health centres, and 14 prenatal centres. At the Bureau's offices, January 11–14 was held the fourth annual conference of the State directors supervising the act. There were present representatives from 37 coöperating States and from three non-coöperating States. The Bureau employed its staff for special studies, and in the instruction of midwives, physicians, etc. Two important tasks in which Bureau units coöperated during the year were the work for the extension of the registration area and in planning a study of maternal mortality. With regard to the latter, the year saw the beginning of research in three States.

There is no doubt that the maternity and infancy act contributed mightily toward the lowering of the infancy death rate. The accompanying table shows infant mortality rates for those States which had accepted the act prior to 1924, and which had been in the registration area for three years prior to acceptance.

It will be noted that for every State, the rates declined during 1922–25. In areas where work had been particularly intensive, the decline in rates was even more marked. Miss Abbott cited the case of a number of counties in central Wisconsin where the rate fell from 65.9 per thousand live births for 1919–22 to 57.8 for 1923–26. On the other hand, in another group of counties not so worked the 1919–22 rate was 73.5 and the 1923–26 rate 68.2.

The work in maternal protection progressed less rapidly. Table II indicates that puerperal septicæmia and puerperal albuminuria still take their terrible toll. It was pointed out, however, that in some localities where prenatal care was given the rate fell.

The infant mortality rate of the United States did not change its position in 1925. For the 14 countries for which comparable statistics were available, four countries (New Zealand, Australia, Netherlands, Irish Free State) had lower rates while nine countries (Belgium, Chile, England and Wales, Finland, Hungary, Japan, Northern Ireland, Scotland, Uruguay) had higher rates. The United States had a higher maternal mortality rate than those of all the countries for which statistics were available. See also CHILD WELFARE.

TABLE I

COMPARISON OF INFANT MORTALITY PRIOR TO PERIOD OF COÖPERATION UNDER SHEPPARD-TOWNER ACT WITH INFANT MORTALITY DURING THE PERIOD OF COÖPERATION; STATE, URBAN, AND RURAL AVERAGE RATES FOR THREE- AND FOUR-YEAR PERIODS FOR SPECIFIED STATES[a]

	State		*Urban*		*Rural*	
State	*1919–21, inclusive*	*1922–25, inclusive*	*1919–21, inclusive*	*1922–25, inclusive*	*1919–21, inclusive*	*1922–25, inclusive*
California	70.3	69.9	64.1	63.3	78.8	79.3
Indiana	77.2	67.9	87.6	75.6	70.1	61.8
Kentucky	71.7	68.9	87.4	83.6	69.1	66.0
Maryland	100.9	91.2	96.4	86.5	106.7	97.4
Michigan	86.5	75.6	92.4	80.0	79.6	69.7
Minnesota	68.9	59.1	65.7	59.7	63.0	58.8
New Hampshire	89.1	82.1	97.4	89.8	80.1	73.9
New York[b]	79.6	69.6	80.7	69.6	74.7	69.7
North Carolina	81.1	80.4	108.4	102.8	78.2	77.0
Ohio	82.2	70.6	85.9	73.0	77.3	67.2
Oregon	58.3	55.1	59.0	52.8	57.8	56.6
Pennsylvania	94.8	84.7	94.4	84.2	95.1	85.2
South Carolina	108.0	97.0[c]	138.4	114.0[c]	104.7	94.9[c]
Utah	71.8	62.1	70.7	59.7	72.3	68.4
Virginia	84.2	79.8	102.6	95.5	79.2	75.5
Washington[b]	61.2	56.4	59.8	50.9	63.0	62.2
Wisconsin	76.0	68.2	87.2	73.1	69.0	64.7

[a] States included were those that coöperated under the act prior to 1924 and had been in the birth-registration area three consecutive years prior to coöperation under the act.

[b] Rates are for 1920 to 1922, and 1923 to 1925, inclusive, as New York and Washington did not coöperate under the act until 1923.

[c] Rate is for 1922 to 1924, inclusive, as South Carolina was dropped from the birth-registration area in 1925.

TABLE II

MORTALITY FROM PUERPERAL CAUSES PER 10,000 LIVE BIRTHS; UNITED STATES BIRTH-REGISTRATION AREA, 1921–1925

			Deaths from puerperal causes			
Year	*Rate per 10,000 live births*	*Numbers of live births*	*Total*	*Puerperal septicæmia*	*Puerperal albuminuria and convulsions*	*All other*
1921	68.2	1,714,261	11,688	4,639	3,081	3,968
1922	66.4	1,774,911	11,792	4,249	3,211	4,332
1923	66.5	1,792,646	11,922	4,495	2,966	4,461
1924	65.6	1,930,614	12,672	4,704	3,441	4,527
1925	64.7	1,878,880	12,158	4,569	3,256	4,333

GERMANY. In July, Germany ratified the Washington Convention of 1919 applying to the employment of women before and after childbirth, and amended its present statutes bearing on that point. The new code prohibits the employment of women for six weeks before and six weeks after confinement, including in its purview all wage-earning women except those employed in agriculture, forestry, animal husbandry, and fisheries.

MATHERS, THOMAS GRAHAM. Canadian jurist, died at Rochester, Minn., August 16. He was born at Lucknow, Ont., Apr. 16, 1859, and was educated at Lucknow and Kincardine, Ont. He went to Manitoba in 1883, and was called to the bar of the province in 1889. He was head of the law department of the Manitoba Government Railways for a few years, and in 1896–1905 was agent minister of justice for Manitoba and counsel for the several departments of the Dominion government. He was alderman of Winnipeg, 1898–1899, and contested the mayoralty in 1900. From 1899 to 1900 he was chairman of the board of license commissioners, and in 1905 was appointed to the King's Bench of Manitoba, as puisne judge. Since 1910 he was chief justice of the King's Bench of Manitoba.

MAU′RITA′NIA. A French colony in French West Africa (q.v.), consisting of eight districts; having the status of a colony since Jan. 1, 1921. Area, 347,400 square miles; native population, 287,338, mostly Moorish Mohammedans; European population, about 300. The budget for 1926 was 8,409,100 francs. The colony is under a lieutenant governor, subject to the governor general of French West Africa.

MAURITIUS, ma-rĭsh′ĭŭs. An island possession of Great Britain in the Indian Ocean, situated 500 miles east of Madagascar, which, with its dependencies of Rodrigues, Diego Garcia, the St. Brandon group of six islands, and other small islands, forms a colony of the British crown. Area of Mauritius, about 720 square miles; population, according to the census of 1921, 385,074. The estimated population at the end of 1925 was 393,708. Capital, Port Louis, with a population of 53,708 in 1925 (including suburbs). In recent years the greater part of Port Louis has passed from the hands of the Europeans to Asiatic or Chinese hands. The movement of population in 1925 was: Birth rate, 45.2 per thousand (exclusive of Indians); death-rate, 23.8 per thousand (also exclusive of Indians). Primary education is free but not compulsory. At the end of 1925 there were 57 government schools, 92 aided schools, and three technical schools. The average attendance in government schools in 1925 was 9886, in aided schools, 14,084, more than three-fourths of whom were in Roman Catholic schools. In 1925 the exports were valued at £2,977,630 and the imports at £4,128,821. The staple exports are sugar, aloe fibre, and coconut oil. The principal participants in the foreign trade are the United Kingdom, the British possessions, France, and the islands of Réunion and Madagascar. The registered shipping on Jan. 1, 1926, 23 vessels of 6966 tons. Vessels entered in 1925, 234 of 632,951 tons; vessels cleared, 229 of 619,221 tons, the greater part of each being British. Railway mileage, 144, of which 24 miles are narrow gauge. There is cable connection with Australia, South Africa, and the islands of Madagascar, Zanzibar, and Réunion. The colony is under a governor aided by an executive council and a council of government, the latter having a minority of elected members. Governor in 1927, Sir Herbert James Read.

MAXIM, HUDSON. American inventor and engineer, died at Lake Hopatcong, N. J., May 6. Born at Orneville, Me., Feb. 3, 1853, he was educated at the Maine Wesleyan Seminary, Kent's Hill, Me., and devoted himself to the study of chemistry, engineering and natural science. At the age of 22 he formulated an hypothesis of the compound nature of atoms, and similar abstruse subjects engaged his attention throughout his career. At the time of his death he was completing a pamphlet in which he sought to maintain that he and not Einstein was the author of the theory of relativity. His first business activity was printing and publishing at Pittsfield, Mass., 1883–88, but in the latter year he turned his attention to the field in which he achieved his greatest success, that of ordnance and explosives. He was among the first to make smokeless powder in the United States. Extending this business, he developed the multi-perforated smokeless cannon powder, and in 1901 sold to the United States government the secret of his high explosive, named maximite after himself. This is a picric acid compound, said to be 50 per cent more powerful than dynamite, which could be fired through armor plate without exploding until after it had penetrated the plate. His later inventions included various processes connected with the electric furnace; a detonating fuse for high-explosive projectiles; stabillite, a smokeless powder invented by him and developed by him in connection with the E. I. du Pont de Nemours Powder Company; motorite, a self-combustive material for driving torpedoes, and a torpedo ram. In 1915 and during the War he was a member of the United States Navy Consulting Board. Hudson Maxim was a brother of the late Sir Hiram Maxim, inventor of the Maxim gun and other devices for use in peace and war. For 20 years the brothers were estranged over the issue of the invention of smokeless powder, each claiming priority. A joint board of army and navy experts gave Hudson Maxim the credit of being the first man to make smokeless powder in the United States. An an author he prided himself most on *The Science of Poetry and the Philosophy of Language*, published in 1910 after 10 years' preparation. He wrote also *Defenseless America* (1915) and *Dynamite Stories* (1916).

MAYOTTE (mȧ-yŏt′) **AND COMORO ISLANDS.** An archipelago belonging to France and administered by the governor general of Madagascar. Total area, about 790 square miles; population in 1921, 109,860; in 1925, 119,305. The area of Mayotte is 140 square miles, and the population (1925) about 12,674. Vanilla is one of the chief products. Others are sugar, cacao, aloes, and perfumes. The chief imports are cotton fabrics, metals, and rice; the principal exports, hides, sugar, copra, and vanilla. The islands are in the Mozambique Channel, midway between Africa and the northern end of Madagascar.

MEARA, FRANK SHERMAN. American physician and educator, died at New York, October 9. He was born at Salem, Mass., May 6, 1866, and was educated at Yale University, and the College of Physicians and Surgeons, Columbia

University. He received his M.D. degree in 1895, and began to practice medicine in that year at New York. Between 1903 and 1904 he was an instructor in medicine at the College of Physicians and Surgeons, New York, and he was connected with Bellevue Hospital, New York, in various capacities from 1904 until 1920. He was consulting physician at St. Luke's and other New York hospitals, as well as at institutions in Bronxville, and Mount Vernon, N. Y., and Dover and Morristown, N. J. From 1920 until his death he was professor of clinical medicine at the Cornell University Medical School, New York. He was the author of *Treatment of Infectious Diseases* (1916, 1921).

MEAT. See Livestock.

MEATH, Bishop of. See Collins, The Most Rev. Thomas Gibson George.

MECHANICAL ENGINEERS, American Society of. An organization founded in 1880 and incorporated in 1881 under the laws of the State of New York, with the following objects: to promote the arts and sciences, to encourage original research, to foster engineering education, to advance the standards of engineering, to promote the intercourse of engineers among themselves and with allied technologists, and, in coöperation with other engineering societies, to broaden the usefulness of the engineering profession. Considerable progress was made in standardization in mechanical engineering during the year, 23 projects being sponsored by the Society under the direction of various committees, many of which completed the tasks assigned to them. Four new projects for which the Society accepted sole or joint sponsorship in 1926–27 were: Wire and sheet metal gauges, wrought iron and wrought steel pipe and tubing, electric motor frame dimensions, and plumbing equipment. Eleven research committees with a personnel of 113 members initiated and fostered researches on specific subjects. Over 400 meetings were held during the year throughout the country in the various geographical groups in addition to the annual and spring meetings and regional meetings. There were 69 local sections and 16 professional divisions, caring for the different phases of mechanical engineering.

The publications of the Society included *Mechanical Engineering*, the journal; *Transactions*, containing the annual papers of permanent value, and issued quarterly on the basis of registration in the professional divisions; the *Record and Index* of all papers presented at authorized meetings, committee proceedings, the presidential address, etc.; The *Engineering Index* to the technical press of the world; *Condensed Catalogues of Mechanical Equipment;* the *A.S.M.E. News*, the semi-monthly newspaper; and the *Year Book* of the Society. The 1927 meeting was held at the headquarters in New York, on December 5 to 8. In November, 1927 the membership was 18,262. Officers elected for 1927–28 were: President, Alex Dow; vice presidents, Charles L. Newcomb, E. O. Eastwood, Edwards R. Fish, John H. Lawrence, E. A. Muller, Newell Sanders and Paul Wright; managers, Robert L. Daugherty, William Elmer, Charles E. Gorton, Paul Doty, Ralph E. Flanders, Conrad N. Lauer, Frederick H. Dorner, William A. Hanley, and Luther B. McMillan; treasurer, Erik Oberg; secretary, Calvin W. Rice. Headquarters are located in the Engineering Societies Building, 29 West 39th Street, New York.

MECHANICS. See Physics.

MECHANICS LIEN LAWS. See Labor Legislation.

MEDICINE AND SURGERY. The policy of the Year Book has for some years upheld the primacy of the great social maladies in the province of medical interest. The greater the damage inflicted on society and industry, the more inevitable is the appearance of organized effort, which, at first local or national, eventually becomes international. In all of these maladies we see governmental aid and private philanthropy active in supplying funds, technical service and other resources. In the great majority of these diseases the incidence is high and the victims are reckoned in many thousands, but there are some affections of relatively low incidence which attract attention because of the high death rate and disabling sequelæ. The fact that science may have succeeded for the time in almost eradicating certain diseases does not and should not rob them of their interest. In some of these the gain is more apparent than actual and in others new outbreaks follow sanitary sins of omission. Naturally an attempt is made to cover the progress of joint effort in obtaining a better insight into diseases, but a year is too short an interval to judge wisely of new discoveries. In these pages an attempt is made to keep track of the progress of our knowledge of revolutionary discoveries such as those of insulin in therapeutics and vitamins in biology. There has been no striking announcement of new diseases in 1927.

The subjects announced during 1927 which suggest the greatest promise include the allergic chamber (see Allergic Diseases) for the treatment at home of respiratory affections of the type of asthma, whooping cough and hay fever; the Minot-Murphy diet for pernicious anæmia (see Anæmia, Pernicious); the endorsement of a new form of painless childbirth by leading maternity institutions (see Analgesia, Obstetrical); a dietetic cure of childhood Epilepsy (q.v.); a serum treatment of Erysipelas (q.v.); the treatment of Rickets (q.v.) by irradiated food substances which have the values of vitamins; a promising treatment of Seasickness (q.v.) and the discovery of new Vitamins (q.v.).

MEGRUE, Roi Cooper. An American dramatist, died in New York on February 27. He was born in New York on June 12, 1883, and was educated at Trinity School, N. Y., and graduated from Columbia University in 1903. He gained his knowledge of the art of writing for the stage while employed as a play broker with Elisabeth Marbury. His first play *Under Cover* was produced in Boston in 1913. It was enthusiastically received there and later in New York. The following year *It Pays to Advertise*, written in collaboration with Walter Hackett, scored an even greater success. Then followed *Under Fire* which he wrote alone, and *Potash and Perlmutter in Society* which he wrote with Montague Glass. The most successful of his other plays was *Tea for Three*, which revealed a talent for light comedy, had a long run on the legitimate stage, and was successfully filmed in 1927.

MELLEN, Charles Sanger. An American railroad president, died at Concord, N. H., November 17. He was born in Lowell, Mass., Aug. 16, 1851; and when a boy went to live at Concord where he graduated from the high school. In 1867 notwithstanding an opportunity to go to college he went to work in the office of the Northern New Hampshire R. R. at Concord. From there he went to the Central Vermont, but soon returned to the Northern N. H. R. R. as assistant treasurer. A few years later he was made superintendent of the Boston and Lowell R. R. His knowledge of operating was gained by practical experience in the yards at all hours studying the manifold activities of traffic and operation until he had familiarized himself with them. He soon attracted the attention of other railroad men, and in 1888 he went to the Union Pacific as purchasing agent, and rapidly rose to become general traffic manager. In 1892 he was appointed general manager of the New York and New England R. R. A few months afterwards he was selected as vice president of the New York, New Haven and Hartford R. R. He then commenced to fight the New York Central. The late J. P. Morgan was a director of both these roads and soon realized that the young vice president was a shrewd railroad man. In 1897 when Morgan wanted some one to build up the Northern Pacific, Mellen was selected for the job. The business of the Northern Pacific was increased during Mellen's régime so that the gross earnings rose 156 per cent. He resigned in 1903 to become president of the New Haven. At this period of his career he undoubtedly did one of the finest pieces of rehabilitation work ever known in American railroads. In the first years of his control he made the New Haven a railroad of remarkable operating efficiency; but his desire for the expansion of the system led to such sweeping plans that in 10 years it had absorbed outside land and water competition amounting to $200,000,000. This strained the finances; the stock collapsed, leaving the road heavily in debt. In 1913 Mr. Mellen was repudiated by his directors and he passed into retirement.

MEMEL. See Lithuania.

MENDES, Frederick de Sola. American rabbi, died at New Rochelle, N. Y., October 26. He was born at Montego Bay, Jamaica, B. W. I., July 8, 1850. He was educated at the Universities of Breslau and Jena, Germany, and at the Jewish Theological Seminary, Breslau, graduating in 1873. In the same year he became preacher at the New Synagogue, Great St. Helen's, London, but after a few months' service there he went to the United States and became assistant preacher of the West End Synagogue, New York, Jan. 1, 1874. He succeeded the late Dr. S. M. Isaacs as rabbi of the congregation, and continued in that post until November, 1920, when he became rabbi emeritus. He founded *The American Hebrew* in 1879, and was the author of several books on Judaism. He took a middle course between orthodox Judaism and the advanced thought of the twentieth century.

MERCURY. See Quicksilver.

MERCURY BOILERS. See Boilers.

MES'OPOTA'MIA, Irak or Iraq. A territory under British mandate in Asia. It comprises the region on the Tigris and Euphrates Rivers between Persia and Northern Arabia; formerly consisting of the vilayets of Bagdad, Basra, and Mosul in the Turkish Empire; conquered by British and Indian troops during the World War and recognized afterwards as an independent state to be placed under a mandatory power, in this case Great Britain.

Area and Population. The area is given at 143,250 square miles; population, according to the census of 1920, 1,849,282, distributed as follows among the respective divisions: Bagdad, 1,360,304; Basra, 785,600; Mosul, 703,378. The inhabitants are mainly Mohammedan and are divided among the two Mohammedan sects as follows: Shiites, 1,494,015; Sunnites, 1,146,685. The Jews in 1920 numbered 87,488 and the Christians, 78,792. The chief seaport is Basra on the Persian Gulf.

Education. According to the latest available statistics on education there were in 1925, 21,755 pupils in 233 government schools and 12,900 pupils in 45 private schools. During 1927, the University of Bagdad was nearing completion, the first block of it having been opened in March, 1926.

Production. Mesopotamia is a land of great potentialities. The soil of the country is rich, but there are vast areas which can only be cultivated if irrigated by canals or pumps. The amount of land under cultivation by pump irrigation is steadily increasing. The problem of economic cultivation with pump irrigation is closely connected with the question of cheap oil. The natural oil resources have not as yet been fully investigated, but rich deposits are believed to exist. A concession for the exploitation of the oil in the Bagdad and Mosul Vilayets was granted to the Turkish Petroleum Co. in March, 1925, and the Anglo-Persian Oil Co. has concession rights on the Persian frontiers near Khaniqin. The British Cotton Growing Association was encouraging cotton cultivation by offering a secure market to cultivators, and the Department of Agriculture coöperated by undertaking scientific experiments and seed culture. In 1925, 3500 bales of cotton were exported. Although the oil deposits have marked it a region of international importance, it has other valuable resources, particularly its rich soil, which has great possibilities under cultivation. Wheat, barley, cotton, dates, rice, and ground nuts are the chief products. Industrially Mesopotamia is very little developed, such activity being confined mainly to a few ice plants and other small industries in the chief cities of the country.

Commerce. Mesopotamia's chief commercial importance is as a medium for transit trade to and from Persia. Great Britain easily leads among countries exporting to Irak, with India a close second, but Persia is so much more important as a purchaser of exports and reëxports that the total volume of trade with Persia is considerably above that with any other country. The greater part of British and Indian exports to Irak are in reality transit shipments to Persia. Exports in 1925–26 amounted to 50,293,783 rupees as compared with 142,008,617 in 1925. Imports in 1925–26 amounted to 107,040,626 rupees as compared with 191,240,989 in the preceding year.

Finance. The revenue in 1925–26 was 57,671,543 rupees and the expenditure 50,813,955. The estimated revenue in 1926–27 was 55,171,900 rupees and the estimated expenditure 54,962,620 rupees.

Communications. The Mesopotamian railway system in 1927 consisted of (1) a meter gauge line from Basra, at the head of the Persian Gulf, to Bagdad, a distance of 350 miles; (2) a meter gauge line, connected with the Basra line by a train ferry across the Tigris River at Bagdad, from Bagdad to Khaniqin (109 miles) which is an important town near the Mesopotamian frontier; (3) a branch meter gauge line from the Bagdad-Khaniqin to Kikuk (109 miles); (4) a standard gauge line from Bagdad to Shergat (186 miles) along the right bank of the Tigris toward Mosul.

GOVERNMENT. The organic law passed by the Constituent Assembly in June, 1924, provides for a limited monarchy and a responsible government. The legislative body consists of a senate of 20 nominated "elder Statesmen," and the lower house of 88 elected deputies. King in 1927, Faisal. The cabinet as formed at the beginning of the year was as follows: Premier and Minister of Foreign Affairs, General Jafar Pasha el Askari; Interior, Rashid Ali Beg el Gilam; Defense, General Nuri Pasha Said; Finance, General Yasin Pasha el Hashimi; Justice, Rauf Beg el Shahdirshi; Works, Amin Zaki Beg; Education, Abdul Mahdi el Mumtafig; Auqaf, Amin Ali Beg Bashayan.

HISTORY. The chief event in a comparatively quiet year for Mesopotamia was the signing of a new treaty between that country and Great Britain on December 14, announced in the British Parliament on December 20. As noted in previous YEAR BOOKS, the relations between Great Britain and Mesopotamia were to be terminated as soon as Mesopotamia was made a member of the League of Nations. During the entire year 1927 there was considerable agitation throughout the country for entrance into the League. In order to bring about this desired result the government had to undertake full military and financial responsibility both as against external and internal foes. The only way out, according to the Irak government, was by having an army based on the conscription idea. This was opposed not only by Great Britain, but by many influential citizens within Mesopotamia itself.

During the fall King Faisal and Prime Minister Jaafar Pasha visited London and entered into negotiations with the British government concerning a new treaty. Although these negotiations seemed for a long time sure to fail, they were finally successful just as Faisal and his Prime Minister were about to start for home. The chief provision of the new treaty was the recognition on the part of Great Britain that the Kingdom of Irak was an independent sovereign state, while, on the other hand, the proposal that Irak be admitted to the League of Nations was deferred until 1932, provided that the present level of progress in the country be maintained and that things go well in the meantime. As noted above under *Government*, the Mesopotamian government is guided by the British government in all matters pertaining to financial operations and international relations. The purport of the new treaty is that similar control is to be exercised by the British government at least until 1932.

MESSEL MEDAL. See CHEMISTRY, INDUSTRIAL, under *Medals*.

METALLURGY. The outstanding development in the realm of nonferrous metallurgy in 1927 was the advance made in the art of selective or differential flotation of complex ores, by which two or more commercial concentrates can be made from one ore, or one concentrate can be made of much higher grade than has heretofore been possible. As a result, many ores, chiefly those of lead and zinc, have become profitable to mine, even with lower metal prices. Smelting practice has also undergone somewhat of a change, owing to the fact that this new method of concentration gives a purer material for furnace reduction.

ORE DRESSING. Symons cone crushers were the outstanding recent development in crushing machinery. They were very satisfactory at most of the installations where they have been made, giving an unusually large reduction in one step, and a uniform product. At the Chino plant, for instance, a crusher of this type reduces a 10- to 12-inch feed to ⅝ inch at the rate of 400 to 500 tons per hour. They are designed somewhat after the manner of a gyratory, with flattened conical crushing plates. Conical ball mills have been made of 10-foot diameter with an unexpected increase in crushing efficiency; and a rod mill with conical ends was also put on the market. The use of cubical grinding media in ball mills seemed still to be confined to the one or two plants where they were first tried, but they were giving satisfaction there. The circulating load of ball and rod mills was being increased where possible, and hydraulic deslimers were being increasingly favored. Three kinds of thickening equipment were available, whereas until recently the usual form of Dorr tanks found almost universal application.

A new filter came on the market in 1927, the principle of which seems most logical. It is known as the Dorrco filter, and in shape is similar to the drum filters of the Oliver type. However, instead of sucking the pulp upward against the periphery of the filter, the pulp is admitted to the inside of the drum and naturally settles in the same direction as that in which it is drawn by the vacuum for filtration. A scraper removes the moist filter cake, and a conveyor carries the filtered material out of the interior of the drum. Much greater capacity is the outstanding advantage over the older form. The disk type of filter also continued popular, and dewatering apparatus of the continuous centrifuge type was introduced for metallurgical purposes.

Advances were made in the art of selectively floating the various minerals in complex ores, through improvements in machinery, in reagents, and in technique. The latest type of flotation machines required much less power than cells of the older design and caused less trouble in operation. Xanthate still had a field all its own as a flotation reagent, but a new compound of this nature was developed at the Braden mine in Chile, which was said to give improved metallurgical results. Also, the metallurgists of the Utah Copper Co. developed the use of di-cresol-di-thio-phosphoric acid, or as it is commonly termed phospho-cresylic or Aero-Float, which has resulted in marked economies at that plant. It was not many years ago that the Utah ore was considered a particularly difficult one to treat by flotation, the recovery being only about 70 per cent on an ore running a little over 1 per cent of copper. About 90 per cent of the copper in 1927 was being recovered on an ore averaging slightly less than 1 per cent. Numerous reagents are customarily used at one plant for various purposes. At a prominent lead-zinc mill for example, the pulp is made alkaline with soda ash; sodium cyanide is used as a zinc depressant in the preliminary lead flotation; xanthate is used as a general conditioner and stabilizer; and cresylic acid as a frother and collector. In the zinc circuit, copper sulphate is used to condition the zinc sulphide, a mixture of cresylic acid and water-gas tar as a frother and collector, and a small amount of "fumol" as a scavenger oil. In cleaning the zinc concentrate, the pulp is heated to depress the silica or the gangue present. A small amount of potassium dichromate may also be used to stabilize the zinc float and to depress iron.

Other reagents used at various plants include: sodium sulphide, as a sulphidizer and deflocculator of slime; pine oil, as a frothing oil; lime as a pulp conditioner and pyrite depressant; thio-carbanilid as a selector or collector; barium sulphide as a deflocculator; tar oil as a froth stiffener; coal tar, as a collecting oil; sodium resinate, to stabilize froth; zinc sulphate, to depress zinc; sodium sulphite, as a zinc depressant; cement, as an alkaline reagent and iron depressant; crude turpentine, for froth control; ortho-toluidine, used mixed with thio-carbanilid; xylidine, in connection with the preceding two reagents, to increase the froth; and sulphuric acid, as a conditioning agent for the flotation of iron sulphides. Two or three other patented reagents were being experimentally used with results soon to be made public.

Some experimental work was conducted by the U. S. Bureau of Mines in the flotation of non-metallic minerals such as limestone, phosphate, and bauxite; graphite, of course, is easily floated.

During the year, the American Institute of Mining and Metallurgical Engineers held a regional meeting in Salt Lake City which was especially devoted to the subject of flotation, and many interesting papers on the subject were published and discussed at that time.

Important mill construction in 1927 included the plant of the American Metal Co., near Santa Fe., N. M.; United Verde Copper Co., Jerome, Ariz.; Noranda Mines, Rouyn, Quebec; and the American Smelting & Refining Co.'s Buchans River plant in Newfoundland.

HYDROMETALLURGY. The new ammonia leaching plant of the Bwana M'Kubwa company, in Africa, met with several difficulties and had not reached the production that was hoped. On the other hand, the new Inspiration Copper Co.'s plant, in Arizona, using acid for the solution of the oxidized copper, and iron sulphate for dissolving the chalcocite, both in warm solution, had proved remarkably successful. Two or three small copper leaching plants had come into production; one at Contact, Nevada, applies the method used by the Ohio Copper Co., leaching the ore in place with 3 per cent sulphuric acid, and precipitating the copper, about 60 per cent of which in the ore is thought to be soluble, on scrap iron.

Production of electrolytic zinc is constantly becoming of greater importance. Two new plants were being built during 1927 and were to be in production early in 1928. One is Anaconda's new plant at Anaconda, Mont., which will duplicate the practice at Great Falls, and the other, that of the Sullivan Mining Co. at Kellogg, Idaho. Several innovations will be made in the last-named plant. For one thing, a much stronger cell acid was to be used—close to 30 per cent instead of 10 to 15 per cent as was the practice elsewhere. Solution of the calcine will be carried out with the acid at near the boiling point, the calcine first being run over magnetic separators to make a high-iron and a low-iron product. The high-iron product will contain most of the relatively insoluble ferrates and will be treated with the hot acid first, the low-iron product being added towards the end of the agitation period. Single-stage batch treatment will be practiced. Filtration is expected to be easier than usual, Burt revolving pressure filters being used. Arsenic and antimony will be removed by precipitation with iron hydroxide; copper, cadmium, and cobalt possibly by metallic zinc. The solution for electrolytic precipitation will contain over 20 per cent zinc, and a current density of over 100 amperes per square foot of cathode area will be used, or more than three times that of other plants. Many other innovations will be tried, which will make this plant of outstanding interest to hydrometallurgists in 1928. For the development of these new ideas, U. C. Tainton is primarily responsible.

The Tainton electrolytic cell was successful in the electrolytic lead plant of the Bunker Hill & Sullivan company, and similar equipment is being considered by the Cerro de Pasco Copper company, which is developing a large low-grade lead-silver deposit in Peru.

Several new cyanide plants for the treatment of gold ores were constructed in 1927, largely in Ontario and on the Rand, in Africa. In general, American and Canadian practice was to grind in solution in ball mills followed by tube mills, using bowl classifiers, with particular attention given to classification and fine grinding of metallics and sulphides. In some instances, the sulphides are removed by flotation and separately treated. The pulp, containing from 90 to 98 per cent of minus-200-mesh material goes to thickeners, followed by agitators, and the residue is finally filtered on continuous vacuum filters. Tandem filters are a successful novelty at some plants. Regeneration of cyanide is a matter of small moment for gold mines, but the comparatively large amount of cyanide used by silver reduction mills makes its recovery important and much success has been attained in this procedure at several Mexican plants.

PYROMETALLURGY. The litigation with regard to the Carson patents for the side-feeding of reverberatory furnaces continued, and as a result there was little published information concerning current practice. Some smelters went back to centre charging, which does not infringe the Carson patents, and claimed to have obtained increased tonnage and lower copper losses by so doing. Watercooling of the side walls and roof arches was being tried at some smelters, and screw feeding of a part of the charge through the furnace walls was still in vogue at the plant where it had been tried for the last two or three years.

Two interesting copper smelters were built during the year. That of the Phelps Dodge Corporation at Douglas, Ariz., has a novel design and arrangement of its roasting furnaces. Formerly, there was not considered sufficient room for roasters to be placed directly above the smelting furnace, so that the calcines could fall by gravity. But owing to the fact that higher-grade concentrates are now available through selective flotation, and to the design of a 11-hearth roaster for this special purpose, six roasters at the new Douglas smelter were found ample for feeding the furnace underneath. The calcined material is thus fed into the furnaces at a red heat, and the fuel ratio thereby secured is well below a half barrel of oil per ton of charge, with a furnace capacity in excess of 1000 tons a day. The practice here was perhaps the most advanced of that at any copper smelter in the world.

A brand new smelter was built in the recently discovered Rouyn district of northwestern Quebec, by the Horne Copper Co., controlled by Noranda Mines. This was blown in in December. Special mention should be made of large bin capacity over the roasters at this plant, insuring a sufficient supply of unfrozen ore. A novelty is the use of heat regenerators through which the waste gases from the reverberatories pass, the hot air thus secured being blown into the furnaces with the powdered coal used for fuel. Brick checkerwork is ordinarily used in steel furnaces, and similar construction has been used in two or three copper reverberatories in the past, but in this installation the heat transfer is made through metal, a nickel alloy being used, as developed by Victor Hybinette. Early results were favorable. At this plant Peirce-Smith basic-lined converters of the horizontal type are used, present practice rather favoring this type over the upright form.

For local reasons, an attempt was recently made to adopt the old-style method of acid converting at one of the Arizona smelters. Though practice was improved over what it was 20 years previously, when basic converting was adopted, it apparently could not equal the more modern method, and the plant in question went back to basic-lined furnaces. The development of an improved and longer-wearing magnesite brick has cut converting costs somewhat.

The feeding of wet concentrates directly into a reverberatory furnace without preliminary roasting, which originated at Cananea, was adopted by the Consolidated Company at Trail, B. C. The higher grade of concentrates make roasting virtually unnecessary at many plants. It was thought likely that there might be some resumption of the work done at Anaconda several years ago in blowing concentrates into a converter, as conditions were more favorable to that practice than they were when the trials were made.

Blast-furnace smelting was abandoned by the United Verde Company, with the completion of its new concentrating plant. The first step in supplanting blast furnaces at the Katanga property in the Belgian Congo also was taken with the erection and blowing-in during the year of a reverberatory furnace for smelting the oxidized copper ore of that region, heretofore treated in blast furnaces. The ore and flux is mixed with a small amount of coal for reduction, and powdered coal is used for fuel, a reducing atmosphere being maintained. Slag losses should be less with this method.

The only new lead smelter of importance built in the United States during the year was that of the Phelps Dodge Corporation at Douglas, Ariz. This consists of an automatic sampling and crushing plant, a nine-hearth roasting furnace, blast furnace, storage bins, sintering machine, lead kettles, casting machine, and baghouse. Further work was done with the Harris process for refining lead by passage of the bullion through molten caustic soda and nitre. Antimony, arsenic, and tin are thereby removed. The American Smelting & Refining Co's. plant at Perth Amboy, N. J., was perhaps the leader in the development of this method.

Marked progress was made in the handling of flotation concentrate by the zinc smelters. No difficulty was met with in reducing this type of material by the ordinary retort methods, provided it is suitably prepared by roasting in multiple-hearth furnaces followed by sintering in Dwight & Lloyd machines. Dust arising in the pre-roasting process is caught by Cottrell fume precipitation equipment. The pre-roasting carries the sulphur down to about 2 per cent; manufacture of sulphuric acid from the roaster gas is the common practice. The calcine is broken up to pea size, mixed with about 5 per cent of fine coal or coke, moistened, and sintered. Almost complete elimination of sulphur is thus secured, and the physical condition of the product is excellent for retort distillation. An outstanding example of a modern plant of this kind is that of the American Steel & Wire Co., at Donora, Pa. The Coley and Ashcroft processes were still of only laboratory application.

The Waelz process, originating in Europe, was of much promise. Crude zinc oxide is reduced in a rough way in a revolving cylindrical kiln, and immediately burned under proper conditions, the zinc oxide in a comparatively pure form being collected. The Anaconda Company, at East Helena, Mont., has installed a different method for recovering oxidized zinc, charging lead blast-furnace slag containing a large amount of zinc into a special furnace in which powdered coal is introduced into the tuyères, the reduced zinc being volatilized.

Copper refining is carried on much as it has been in the past. An electrolytic plant using about twice the usual current density was being built by the Mount Lyell Company at Queenstown, in Australia. Extremely cheap hydro-electric power makes this economically advisable. The Union Minière's electrolytic refinery in Belgium went into operation at the end of the year, the first unit having a capacity of 30,000 or 40,000 tons of copper a year. Katanga production increased by about this amount, so approximately the same tonnage as heretofore will continue to be refined by the Nichols Company, in New York City.

METCALFE, JAMES STETSON. An American dramatic critic and author, died in New York on May 26. Born in Buffalo, N. Y., on June 27, 1858, he was graduated at Yale in 1879, later receiving the honorary degree of A.M. in 1891. For six years prior to becoming a dramatic critic he was editor of *The Modern Age,* editorial writer on *The Buffalo Express*, editor of *The People's Pictorial Express*, and manager of the American Newspaper Publishers' Association. In 1889 he became dramatic critic of *Life,* and for 31 years he held the position. He was recognized as a vigorous critic and was at one time barred from the theatres on account of his fearless attacks on theatrical producers. He severed his connection with *Life* in 1920 to become the art and dramatic critic of *Judge.* In 1923 he joined the staff of *The Wall Street Journal* as dramatic editor, and was on this paper until his death. He established the Metcalfe Dramatic Prize at Yale University in 1915. His published works were: *Mythology for Moderns* (1900); *The American Slave* (1900); *Another Three Weeks* (1908); *The Diary of a District Messenger* (1909) and *Jane Street* (1921).

METEOROLOGY. In recent years, the general conclusion has been reached by most authorities that the variations of climate known to have taken place on the earth during geological times probably were brought about entirely by terrestrial factors, and that it is unscientific to postulate external cosmic controls. C. E. P. Brooks, in particular, has sought to show that, under the right conditions, profound effects may follow a very slight change in temperature. For example, if the temperature in the polar regions happened at any time to be just above the freezing point of sea water, and if then, by a change in the distribution of land and water, the mean annual temperature in high latitudes were decreased by only 2°, the ocean would freeze at the pole; cold water would then flow away at the bottom until the entire ocean was cooled down, when an ice sheet would begin to form, the ice sheet would automatically accelerate its own growth through its powerful and ever increasing cooling effect, and might ultimately extend to latitude 65°; the temperature at the pole would meanwhile have been lowered by 45°. Conversely, a slight rise in the general temperature would suffice to cause the ultimate disappearance of the whole ice sheet; at the present time, a very small rise would clear the Arctic of ice, and there is evidence that the Arctic actually was clear of ice from about 500 A.D. to 1000 A.D.

G. C. Simpson, however, has taken the extreme viewpoint that no redistribution of land and water, or of ocean currents, could have produced a much higher or lower mean annual temperature over any limited region of the earth than to-day can be found *somewhere on the same parallel of latitude;* the average temperature of any given parallel is to-day practically the same in both northern and southern hemispheres in spite of the very different distribution of land and water in the two; the lowest mean annual temperature on any given parallel over North America is about the same as that on the same parallel over the much more extensive Asiatic land mass. Thus, while the distribution of land and water is very important in determining the actual mean annual temperature *at any one place* in a given latitude, it seems to play little part in determining the *average of all places* in that latitude; and the maximum possible variations between different places in the same latitude apparently exist today.

The primary cause of all meteorological phenomena is the heating in tropical regions and the cooling in polar regions. The temperature contrast thus set up induces the general atmospheric and oceanic circulations; the transportation of heat by the latter tends to eliminate the temperature difference; a steady state is reached when a balance is struck between the two opposing tendencies. Simpson argues that if the temperature contrasts between polar and tropical regions were reduced, the general circulations would decrease until the original contrast was again restored; the present zonal distribution of temperature, with about the same latitudinal differences, is a physical characteristic of the atmosphere that cannot be materially disturbed by any change in the distribution of land and water, though the distribution of temperature along a given parallel may be disturbed within certain limits.

DYNAMICAL METEOROLOGY. In the long run, the total amount of heat lost by the earth as a whole, through outgoing terrestrial radiation, must be just equal to the total heat gained through incoming effective solar radiation (since no part of the earth is growing steadily warmer or colder); but at any one place this is not in general true—the equatorial regions receive more radiation then they emit, the excess of heat being transported by the circulations to higher latitudes where more radiation is given out than is received. Important studies of this transport of heat have been made by Angstrom, Exner, and others; Exner has calculated the intensity of atmospheric circulation that should theoretically correspond to the observed temperatures and amounts of incoming and outgoing radiation at different latitudes, and obtains good agreement with observation.

Cyclones and anticyclones are necessary dynamical consequences of the general planetary circulation (as has been shown, in different ways, by Jeffreys and by Exner), and draw their energy from the circulation; but the details of the manner in which they originate, their structure and mechanism, and the immediate source of their energy, constitute incompletely solved problems.

Humphreys has pointed out that in those regions of the United States where tornadoes are most frequent, cold anticyclonic winds often overrun warm cyclonic winds and produce a windshift line in midair, in advance of the surface shift. This necessarily leads to strong local convection, starting from this higher level, at or near the boundary between the two systems of winds. Now, although the directions of the two winds *relative to the earth* may be southwest and northwest respectively, nevertheless if both are moving eastward with the same speed they will be moving in exactly opposite directions *relative to each other;* and convection along the midair windshift line between two such currents will drag in air from each, and lead to strong rotation. Probably the tornado vortex, which starts at the cloud level in the warm sector of a cyclone, more or less east of the surface windshift line, is formed in this way.

METEOROLOGICAL PHYSICS. Simpson has shown that lightning discharges always start from a positively electrified region and progress outward from it, although the current is carried by electrons that move in the opposite direction; the branches are directed away from the positive region. The majority of discharges start in the forward part of the thunderstorm cloud, where there is an accumulation of positively charged raindrops due to the strong ascending air currents there; the flashes which branch upward are mostly hidden by the cloud, while many of those which branch downward fail to reach the earth. Discharges from the earth to the cloud are less frequent; and when they occur they appear thick and intense, the branches (directed upward) usually being hidden in the cloud.

A diffuse aurora extending to an altitude of 1000 kilometers was observed in Norway on Sept. 8, 1926. Störmer has found that auroral rays situated more than 400 kilometers above the earth are always in regions then exposed to sunlight, while 96 per cent of those below 400 kilometers are in darkness; sunlight apparently has some action on the very high atmosphere that renders auroras visible to much greater heights than otherwise.

Studies of the amount of ozone in the upper atmosphere and the intensity of ultra-violet light reaching the surface of the earth from the sun, together with their variations, and relations to weather conditions and solar activity have claimed a great deal of attention recently.

Statistical Meteorology. A periodogram analysis, by Brunt, of several exceptionally long European weather records has given evidence of the existence of 44 different periods in temperature, pressure, etc., from one to 35 years in length; but this evidence is not convincing to all authorities. Sir Gilbert Walker, after applying more rigid statistical criteria, has concluded that periods in temperature of 12.3 months and of 13 months are all that may definitely be regarded as real, though a few others are worthy of more investigation.

Miscellaneous. Extensive studies of the forms, and physical conditions of formation, of clouds, and their relations to weather conditions and to the thermodynamical structure of the atmosphere, were being made at the Lindenberg observatory in Germany.

The continued development of aviation in the United States had led to many activities in aëronautical meteorology, and to the further development of meteorological services for aviation.

Necrology. Eduard Brückner (q.v.), May 21; Alfred de Quervain, January 13. W. H. Dines, December 24.

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METHANOL. See Chemistry, Industrial.

METHODIST, Wesleyan Connection of America. A branch of the Methodist Episcopal Church, organized May 31, 1843, at Utica, N. Y., the outgrowth of controversy over what was termed "liberty of testimony and freedom of discussion," and also a protest against the exercise of ecclesiastical authority. The purpose of the new organization was a church that should be anti-slavery and non-Episcopal. In doctrine the church is in accord with the Methodist bodies generally. In 1927 the branch comprised 29 annual conferences, including mission conference in India, Africa, and Japan. Its General Conference meets quadrennially and convened in June, 1927, at which time the use of tobacco in any form, its growth, sale or manufacture, was made a test of full membership. Statistics for 1927 gave 651 churches, 666 ministers, 22,011 church members, and 979 associate members in addition to full members, 603 Sunday schools with an enrollment of 41,694. The Home work was being pushed aggressively and six new conferences were organized in 1926–27. Colleges maintained by the church were: Central College, Central, S. C.; Houghton College, Houghton, N. Y.; Marion College, Marion, Ind.; and Miltonvale College, Miltonvale, Kan. In June, 1927, Houghton College received its permanent charter from the Regents of the University of the State of New York, having been operated under a provisional charter. *The Wesleyan Methodist* (weekly), Syracuse, N. Y., is the official organ of the church. A large printing plant is maintained at Syracuse and all the literature of the church is printed there. Headquarters are at 330 East Onondaga Street, Syracuse, N. Y.

METHODIST EPISCOPAL CHURCH. Methodism in its widest signification and intention was a "revival of Christian earnestness, simplicity and power." John Wesley (1703–91) had no intention of establishing a new church. His effort was to revive pure and undefiled religion. He taught the doctrines of the Church of England, and "faithfully urged the people to attend its ordinances, to be present at its public assemblies, and be interested in its prosperity." Had the authorities of the Church of England accepted some of Wesley's plans in place of driving him away from them, things might have worked out differently. He sent two of his workers to America in 1769, Richard Boardman and Joseph Pilmoor. These men were followed in 1771 by a man who was destined to be the great leader of the infant church, Francis Asbury. The first Conference was held in Philadelphia in 1773 at which were present 10 preachers, who reported 1170 members. The work grew until 1784, at which time there was organized in Baltimore, at the "Christmas Conference," the Methodist Episcopal Church.

The governing body is the General Conference that meets once in four years, composed of an equal number of ministerial and lay delegates. They make all the rules and regulations. The Annual Conference meets once a year, presided over by a bishop, when all pastoral changes are considered and reports of the local churches gathered and compiled. There is a church conference called the Quarterly Conference, that administers all the matters that pertain to the work of the local church. There were in the United States, in 1927, 106 annual conferences and missions, and in the various foreign fields 61, a total of 167.

The Methodists have long had missions that have grown into Annual Conferences, in Mexico, South America, Europe, Africa, Southern and Eastern Asia, the Philippines and the islands of many seas. This work is carried on by the Board of Foreign Missions. They received during 1927, $2,870,046. There was also a Board of Home Missions and Church Extension that looked after weak churches in new and growing places in the United States, where church buildings were needed, and ministers had to be supported. The Board also cared for the religious work among many foreign language groups. During the year 1927 a total of $2,608,000 was expended on this work. There were two Women's Missionary Societies, the Foreign and the Home.

The receipts for the year were $5,698,172 for the two societies.

The Board of Education had under its oversight 44 colleges and universities; 28 secondary or preparatory schools; 44 professional and graduate schools. Among the colored people there were 17 schools, of which 10 were colleges, four secondary and three professional schools. There were in attendance 81,378 students, besides those in the professional schools; the faculties numbered 4000; property was valued at $78,000,000, and the endowment was $74,000,000. The Church had 79 hospitals; 45 homes for the aged; 46 homes for children; 60 deaconesses' homes; 23 homes for business girls and young men. The value of these was $53,797,592. There were 29,409 church buildings worth $414,226,836; 16,150 parsonages, valued at $69,945,910; and 34,586 Sunday schools with an enrollment of 4,616,171. The Epworth League, the young people's society of the Church, had a membership of 650,000.

The membership of the Methodist Episcopal Church for 1927 was 5,230,340. The statistics of general Methodism in all branches, as reported from London were: Ministers, 59,824; lay preachers, 93,081; church members, 11,869,388; Sunday schools, 79,372; officers and teachers, 1,023,673; scholars, 10,086,907; churches, 105,596.

METHODIST EPISCOPAL CHURCH, SOUTH. A separate branch of the Methodist Episcopal Church formed in 1845 over the question of slavery. Figures for 1926 reported 56 conferences, of which 42 were in the United States and 14 in foreign countries.

The executive body is the College of Bishops, which in 1927 had 14 members who hold office for life. The denomination sponsors 248 educational institutions, including 32 universities and colleges, 23 junior colleges, 22 academies, and 46 mission schools. In 1927 the enrollment in these institutions was 33,000 students. The value of educational institutions was $40,000,000, with $40,000,000 additional in endowment. In the same year there were 8348 traveling preachers, 5001 local preachers, and 17,535 churches with a membership of 2,630,538. There were 270,290 members in the Epworth League and 16,335 Sunday schools with an enrollment of 2,028,311. The Board of Missions carries on work in Belgium, Brazil, Mexico, China, Czechoslovakia, Poland, Japan, Cuba, Korea, Siberia, and the Congo. The most important periodicals of the denomination are the *Methodist Quarterly Review* and the *Christian Advocate*. The official *Yearbook* of the Church is edited by Curtis B. Haley, Nashville, Tenn. The headquarters of the Church are also in Nashville. The secretary of the last General Conference was A. F. Watkins, Meridian, Miss.

METHODISTS, COLORED. Several churches of the Methodist faith and form, composed of colored members. One of these, the Colored Methodist Episcopal Church, formed in 1870 as an offshoot of the Methodist Episcopal Church,

GENERAL STATISTICS OF METHODISM, 1927
[*From the Methodist Year Book, 1928*]

Denomination	*Ministers*	*Lay preachers*	*Church members and probationers*	*Sunday schools*	*Officers and teachers*	*Sunday school scholars*	*Churches, etc.*
WESLEYAN METHODISTS:			519,510	7,821	120,215	825,604	8,600[a]
Great Britain	2,500	19,024					
Ireland	242	602	29,590	336	2,228	22,586	416
Foreign Missions	747	11,149	287,759	2,981	10,741	168,669	5,311
French Conference	26	63	1,757	25	85	693	55
South African Conference	282	5,942	169,583	1,000	8,295	45,777	4,674
PRIMITIVE METHODISTS	1,087	13,456	220,806	3,971	54,866	394,050	4,554
UNITED METHODIST CHURCH	713	4,735	153,857	2,068	37,777	242,886	2,216
WESLEYAN REFORM UNION	26	504	10,178	203	2,412	24,085	215
INDEPENDENT METHODIST CHURCHES	388	....	10,502	165	3,243	24,563	165
AUSTRALASIAN METHODIST CHURCH	1,136	8,036	166,101	3,511	30,916	203,431	3,752
NEW ZEALAND METHODIST CHURCH[b]	190	816	29,425	465	3,121	31,632	1,030
UNITED STATES:							
Methodist Episcopal[c]	20,905	14,556	5,152,236	17,248	407,182	4,217,372	28,656
Methodist Episcopal, South	8,304	5,264	2,602,316	16,346	172,760	2,014,788	17,540
Methodist Protestant	1,134	877	188,878	1,988	17,495	180,071	2,257
African Methodist Epis. (Col'd)	7,000	6,330	698,029	7,200	29,996	320,000	7,500
African Meth. Epis. Zion (Col'd)	3,962	....	412,315	2,092	16,245	193,000	2,716
Colored Methodist Episcopal	2,638	....	331,021	2,543	18,884	193,000	3,577
Free Methodist	1,200	....	40,251	1,280	10,150	68,945	1,260
Wesleyan Methodist	645	45	21,500	625	3,800	32,000	550
Primitive Methodist	80	75	11,905	102	1,524	14,781	102
Congregational Methodist	500	....	21,000	182	1,146	8,785	352
New Congregational Methodist	27	....	1,256	27	148	1,298	24
Union Amer. Meth. Epis. (Col'd)	205	105	18,812	67	321	2,531	267
African Union Meth. Prot. (Col'd)	260	....	3,750	49	441	3,088	58
Ref. Zion Union Apostolic (Col'd)	79	....	10,000	36	212	1,508	58
Ref. Meth. Union Epis. (Col'd)	48	....	2,772	18	204	1,792	25
British Methodist Epis. (Col'd)	20	6	700	18	125	....	21
African Methodist Protestant	675	....	26,100	...	...	...	650
African American Meth. Epis.	35	....	5,811	25	...	934	27
UNITED CHURCH OF CANADA	4,612	1,856	692,348	6,926	74,146	806,468	8,806
JAPAN METHODIST CHURCH	158	140	29,420	554	.....	42,570	162
Totals	59,824	93,081	11,869,388	79,372	1,023,673	10,086,907	105,596

[a] Seating accommodation, 2,418,356.

[b] These figures include the Solomon Islands Mission with 64 lay preachers, 4,791 members, 41 Sunday schools, 1,384 scholars and 122 churches and preaching places.

[c] Methodism is also represented in several European countries by Conferences and Missions affiliated to the Methodist Episcopal Church of America, and their membership is included in the figures given above. The latest returns available are: Austria, 1,042 members; Bulgaria, 757; Denmark, 4,201; Finland, 2,254; France, 1,094; Germany (North), 23,200; Germany (South), 18,054; Hungary, 692; Italy, 3,860; Jugo-Slavia, 1,440; Norway, 7,567; Russia (and Baltic Mission), 8,545; Sweden, 16,475; Switzerland, 11,938.

South, effected the separation from that body of its remaining colored membership. Its quadrennial general conference was held at Kansas City, Mo., May, 1926, when it reported 10 bishops (one retired). It sponsored 14 schools and a hospital at Memphis, Tenn., and maintained missions in Trinidad, and the British West Indies. It had 3647 traveling clergymen and 2186 local clergy. Its churches numbered 4306, with 448,956 members. There were 3132 Sunday schools with an enrollment of 256,203, and Epworth Leagues to the number of 1192 had 36,923 members. The amount raised during the year for educational purposes was $223,566; for Sunday schools, $310,560; and for salaries of pastors, bishops, and general officers, $1,167,522.30. It published the following periodicals: *Christian Index*, *Western Index*, *The Index Herald*, and *Colored Methodist*. Its headquarters are at Jackson, Tenn.

METHODISTS, CONGREGATIONAL. A group of Methodists organized at Forsyth, Ga., in May, 1852, for the purpose of securing a more democratic form of church government. Latest available statistics report 13 State conferences, 352 churches, with about 21,000 members and 500 ministers, and 182 Sunday schools. The movement is strongest in the Southern States, although there are some churches in the North. The general conference meets quadrennially. The president of the general conference in 1927 was the Rev. N. E. Fair, and the secretary, J. M. Hays, Laurel, Miss.

METHODISTS, WESLEYAN. The principal branch of the Methodist denomination in Great Britain and Ireland, founded at the University of Oxford in 1729 by John and Charles Wesley, and holding its first Conference at London in 1744. This is the mother church of the denomination and is composed of five divisions: Great Britain; Ireland; Foreign Missions; French Conference; and South African Conference. Statistics for all divisions for 1927 were: churches, 19,056; lay preachers, 36,780; church members and probationers, 1,008,199; Sunday schools, 11,663; officers and teachers, 136,564; pupils, 1,063,329. In Great Britain alone there were 8600 churches, 19,024 lay preachers, and a church membership of 519,510. In July, 1927, the church held its 184th Conference. The denomination maintains a publishing house at 25 City Road, London, C. E., 1. The Methodist Church of Ireland held its 158th Conference in June, 1927. This division of the church in 1927 had 416 churches, 602 lay preachers, and a membership of 29,590; it published *The Irish Christian Advocate* at 75 Rosemary Street, Belfast. See also METHODIST, WESLEYAN CONNECTION OF AMERICA.

PRIMITIVE METHODIST CHURCH. Commonly known as the "Camp Meeting Methodists," organized in Staffordshire in 1810, the American church being organized in 1844 by Hugh Bourne, one of the leaders and founders of the movement in England. In 1927 there were reported to be 4554 churches, 13,456 lay preachers, 220,806 members and probationers, and 3971 Sunday schools, with 54,866 teachers and officers and 394,050 pupils. The church maintained a publishing house at Holborn Hall, Clerkenwell Road, London E. C. The American branch of this denomination, comprising the Western, the Pennsylvania and Eastern Conferences, reported 86 churches, 85 ministers, 9986 members, 87 Sunday schools, with an enrollment of 16,807 and $279,584 raised for all purposes, in 1927. The last General Conference, which meets quadrennially, was held in September, 1925, at Kewanee, Ill.

UNITED METHODIST CHURCH. Established in England in 1907 and composed of the New Connection, the Bible Christians, and the United Methodist Free Churches. In 1927 there were 2216 churches, 4735 lay preachers, a church membership of 153,857, 2068 Sunday schools with 37,777 officers and teachers and an enrollment of 242,836 pupils. Publishing House, 12 Farringdon Avenue, London, E. C.

WESLEYAN REFORM UNION. One of the smaller divisions of the denomination. It separated in 1850 from the Wesleyan Methodists and organized as a separate body in 1859. For statistics, see METHODIST EPISCOPAL CHURCH.

INDEPENDENT METHODIST CHURCHES. These churches were founded in 1796, and united with other societies in 1806. The title was changed twice but in 1898 the old name was resumed. In 1927 there were 165 churches with 10,502 members and probationers; 165 Sunday schools with 3243 teachers and officers and 24,563 pupils. The annual meeting of the churches was held in June, 1927.

AUSTRALASIAN METHODIST CHURCH. Methodism in Australia dates from 1812, the first conference being held in 1855. In 1927 there were 3752 churches; 8033 lay preachers; 166,101 members; 3511 Sunday schools, with an enrollment of 203,431. Publishing houses are maintained in Sydney, Melbourne, Adelaide, Brisbane, and Perth.

Other foreign branches of the denomination include the New Zealand Methodist Church and the Japan Methodist Church, for statistics of which, see METHODIST EPISCOPAL CHURCH.

METROPOLITAN MUSEUM OF ART. See ART MUSEUMS.

METROPOLITAN OPERA HOUSE. See MUSIC under *Opera*.

MEXICAN BEAN BEETLE. See ENTOMOLOGY, ECONOMIC.

MEXICAN FRUIT FLY. See ENTOMOLOGY, ECONOMIC.

MEXICO. A federal republic lying between the United States and Central America. Capital, Mexico City.

AREA AND POPULATION. The area of the republic, which is divided into 28 states, one federal district, and two territories is 767,189 square miles. The population, according to the census of 1921, was 14,234,799 of whom 6,974,213 were males and 7,287,586 females. The prevailing religion is Roman Catholic, but, according to the new constitution of 1917, the church is separated from the state, and there is toleration of all other religions. No ecclesiastical body can acquire landed property. Mexico City, the capital of the republic, had a population of 615,367, of whom 23,668 were foreigners, at the census of 1921. Other large cities are Guadalajara, 119,468; Monterey, 73,528; San Luis Potosi, 68,022; and Merida, 62,447. Immigration in 1925 was 127,336 and emigration, 81,757, leaving a balance in favor of immigration of 45,579. According to estimates of the National Bureau of Statistics, published in June, 1927, the inhabitants of Mexico are occupied as follows:

MEXICANS, OCCUPATIONS, 1927

Occupation	*Number*	*Per cent*
Exploitation of the surface of the soil (agriculture, hunting and fishing, surface mining, quarrying, extraction of salt	3,490,029	24.35
Extraction of minerals (subsoil mining)	27,842	0.19
Industries, excepting transportation	632,679	4.41
Transportation	74,897	0.52
Commerce	270,660	1.89
Public protection (army, police, firemen, etc.)	54,195	0.38
Public administration	8,769	0.06
Professions	80,110	0.56
Housewives and domestics	4,740,006	33.07
Miscellaneous	215,539	1.50
Unknown or unproductive occupation (persons living on income, children, students, the indigent, etc.)	4,740,044	33.07
Total	14,334,770	100.00

EDUCATION. Education is free and compulsory, and, according to the constitution of 1917, secular. It is regulated by the State authorities except in the Federal District where it is regulated by the national government. The 1921 census figures showed the percentage of illiterates to be 62.29, while the 1926 statistics showed that there were in the country 2,652,199 children of school age, of whom only 1,040,521 were attending school, or 35.57 per cent of the school population. Therefore, of each 10 Mexican children six were not attending school. The need for rural schools was very great, the total number maintained by the states being 4635 and by the federal government, 2690. Dr. Puig Casauranc, Secretary of Public Education, announced on Nov. 26, 1926, that in spite of the economy programme of the administration during 1927, 1000 more rural schools would be opened by the federal government, 10 cultural missions would travel through certain sections of the country, and 10 normal schools for rural school teachers would be established. The location of the new schools was to be decided upon the basis of population and the funds for education allotted to each district by the federal government, the schools to be established preferably in those places where there have been few or no schools.

The Department of Education toward the end of 1927 made public the following figures on enrollment in the elementary day schools maintained by the federal government in the various States during 1926:

Aguascalientes, 964; Campeche, 3067; Coahuila, 1,545; Colima, 2,070; Chiapas, 3211; Chihuahua, 861; Durango, 876; Guanajuato, 1646; Guerrero, 750; Hidalgo, 2957; Jalisco, 364; Mexico, 2848; Michoacán, 2836; Morelos, 2253; Nayarit, 1146; Nuevo León, 2795; Oaxaca, 1704; Puebla, 2319; Querétaro, 1266; San Luis Potosi, 1679; Sinaloa, 1073; Sonora, 403; Tabasco, 655; Tamaulipas, 622; Tlaxcala, 1310; Vera Cruz, 372; Zacatecas, 1385. Of the 42,957 pupils enrolled, 27,215 were boys and 15,742 were girls. The States which showed the fewest pupils enrolled in the government primary schools were those which, in response to the requests of the Secretary of Education, had established schools supported by their local governments.

AGRICULTURE. Production of practically all agricultural products in Mexico showed increases in 1926, as compared with 1925, in spite of severe damage suffered by the crops from floods and insect pests, according to *Commerce Reports.* The following table shows the various products for which 1926 production figures were available, with comparative figures for 1925:

MEXICAN AGRICULTURAL PRODUCTION
[*In kilos*]

Products	*1925*	*1926*	*Increase*	*Decrease*
Corn	1,889,563,895	2,077,001,699	187,437,804	....
Wheat	256,913,194	[a]278,800,000 [b]182,800,000	[c]21,886,806	[c]74,113,194
Garbanzos (chickpeas)	50,060,020	81,190,485	31,130,465	....
Beans (frijoles)	156,173,695	173,920,024	17,746,329	....
Vanilla beans	106,818	100,000	....	6,818
Bananas	102,216,530	142,748,840	40,532,310	....
Alfalfa	1,114,306,000	1,620,490,000	506,184,000	....
Potatoes	37,783,698	42,970,565	5,186,867	....
Coffee	37,834,332	27,349,495	....	10,484,837
Sugar	168,100,000	194,700,000	26,600,000	....
Sugar cane	4,761,124,000	4,640,439,000	....	120,685,000
Cotton	43,850,689	85,869,494	42,018,805	....
Tobacco	9,334,201	9,187,985	....	146,216
Henequen	127,857,818	120,000,000	....	7,857,818
Tomatoes	59,977,457	66,103,167	6,125,710	....
Rice	34,438,220	38,125,350	3,687,130	....
Lentils	393,771	451,826	58,055	....

[a] Figures given out by the Mexican Department of Agriculture.
[b] Figures given out by the national department of statistics.
[c] Wheat production shows either an increase or decrease, depending on which figure is used.

Products showing a decrease in yield are vanilla beans, coffee, leaf tobacco, sugar cane, and henequen. Owing to the two sets of figures given out in the case of wheat, it is impossible to determine whether there was a decrease or an increase. As the amount of henequen produced in 1925 was much greater than the amount sold, the government ordered a curtailment of 25 per cent in its production for 1926. Although the operations of the agrarian law affected many of the large "haciendas," according to figures is-

MEXICAN CROP AREAS, IN HECTARES [a]

Product	*1925*	*1926*
Corn	3,740,965	3,028,617
Wheat	697,967	472,358
Garbanzos (chickpeas)	109,868	150,000
Beans (frijoles)	448,995	895,036
Alfalfa	[b]31,248	44,468
Potatoes	12,824	14,587
Coffee	69,307	55,044
Sugar cane	82,323	91,795
Cotton	161,787	229,481
Tobacco	14,777	14,772
Rice	43,914	47,392

[a] 1 hectare equals 2.47 acres.
[b] Estimated.

sued by the Mexican government, the amount of land cultivated in 1926 was greater in all cases, except that sown to corn and wheat, than in 1925. As acreage figures were not available for all crops, the following table is necessarily incomplete.

Although the amount of land devoted to corn shows a decrease, the production of this crop was stated to have increased considerably in 1926, as compared with 1925. Wheat acreage decreased approximately one-third and this fact, together with increased imports, would appear to support the production figures of the Department of Statistics, and cast some doubt on the accuracy of the reports of the Department of Agriculture.

In a number of cases the agriculture commodities produced are insufficient to supply the local needs with the result that importation is necessary, this being especially true of wheat and corn. During the calendar year 1926, the United States exported to Mexico 1,781,266 bushels of wheat as compared with 1,253,010 bushels in 1925. Corn exports amounted to 4,211,704 bushels in 1926, which is the largest amount since 1921. During 1925, only 2,412,957 bushels of corn were exported to Mexico. Although the United States is the largest supplier of corn and wheat to Mexico, there are a number of other countries which also ship these products to that country.

According to preliminary figures issued by the Mexican Government the wheat produced in 1927 amounted to 313,496,651 kilos as compared with 281,214,728 kilos in 1926, owing to the considerable increase in acreage. On the other hand cotton production in 1927 was but 33,823,251 kilos as compared with 78,016,452 kilos in 1926 on account of the reduced cotton acreage in the Laguna district due to losses sustained by the cotton growers of the country in the previous years.

Coffee production, which had been showing a decrease, increased during 1927 when the output was 33,125,598 kilos as compared with 27,349,945 kilos in 1926. The garbanzos (chickpeas) crop of 1927 amounted to 80,554,106 kilos, or a decrease of 1,398,496 kilos from 1926. This product was fast becoming the most important crop among Mexico's exports. In 1927 there was an increased yield of fresh vegetables, the total amounting to 8695 carloads; tomatoes alone giving 79,880,523 kilos as compared with 67,917,538 kilos in 1926. In Yucatan 678,244 bales of henequen were shipped as compared with 555,360 bales in 1926; 174,109 bales remaining unsold as compared with 250,000 bales at the end of the previous year.

During the revolutions of 1910 to 1920, the livestock industry suffered severely. Since that time, however, the industry has flourished, with the result that at present the number of animals is reported to be greater than before the revolution. The accompanying table gives the census of the livestock raised in Mexico in the years 1902, 1923, and 1926.

The revolutionary activities from 1910 to 1920 were centred in the northern states where the cattle ranches are located, and as a result thousands of cattle were driven off, or slaughtered to feed the troops. The Mexican department of agriculture states, however, that the country has fully recovered in approximately three years from the losses suffered in 21 years. This recovery is especially remarkable when it is considered that the large ranches which were depleted during the revolutions have never been restocked.

LIVESTOCK RAISED IN MEXICO

Class	*1902*	*1923*	*1926*
Cattle	5,142,454	1,750,305	5,121,479
Goats	4,206,041	1,571,015	4,899,449
Sheep	3,424,430	1,881,714	2,381,285
Horses	859,217	355,662	963,665
Hogs	616,139	551,795	2,692,847
Mules	334,435	248,864	621,544
Total	14,582,716	5,859,855	16,680,269

Mexico has many small national industries, foremost of which are the textile mills and the shoe factories. These were becoming increasingly important, and, in the cheaper grades, afford serious competition to imported goods. However, on account of the relatively high wages and excessive demands of labor as compared with their efficiency and production, many of the manufacturing industries found it difficult to continue operations in 1926, and production in practically all lines of manufacture was curtailed.

According to a report of the Department of National Statistics, published in *El Universal*, of Mexico City, for June 1, 1927, the textile industry had shown a remarkable growth during recent years. The fact that the textile industry was in harmony with the racial aptitudes of the Mexican people was said to be responsible, in part, for the development of that branch of industry. The following figures give an idea of its progress:

Year	*1921*	*1925*
Number of factories	121	130
Looms	28,409	30,800
Spindles	770,945	831,524
Cotton consumed ....kilos..	39,924,235	40,996,834
Sales ....pesos..	93,341,985	108,395,604
Number of workers	38,227	48,199

MINING AND PETROLEUM. There was a notable increase in the production of all important metals in Mexico during the calendar year 1926 as compared with 1925, except of gold and graphite, which showed a slight reduction in output. The production of silver, lead, and zinc exceeded all former records. The production of copper was greater than in any previous year with the exception of 1918, when this metal was at a high premium on account of the demand caused by the War.

The accompanying table shows comparative figures for the production of the principal metals and minerals in 1925 and 1926 and values in Mexican pesos.

Nothwithstanding the decline in silver prices during the second half of 1926, the total value of silver production during the year surpassed the 1925 output by 5.78 per cent. Lead production was 22.7 per cent greater than in the preceding year and copper production 4.72 per cent. The output of zinc was not only the greatest in the history of Mexican mines, but it also surpassed the best previous year, 1925, by more than 130

MINERAL PRODUCTION OF MEXICO

Product	1925 Kilos	1925 Value Pesos[a]	1926 Kilos	1926 Value Pesos[a]
Gold	24,541	32,722,554	24,083	32,040,616
Silver	2,889,962	134,839,843	3,057,268	128,843,906
Lead	171,767,429	68,412,747	210,794,394	83,912,921
Copper	51,336,155	32,653,883	53,763,192	34,119,705
Zinc	45,770,148	15,969,176	105,366,568	37,875,406
Antimony	1,398,493	1,226,960	2,614,444	2,487,274
Mercury	38,721	....	45,416	....
White arsenic	4,192,611	....	6,458,224	....
Tin	1,033	....	2,224	....
Amorphous graphite	5,839,226	....	4,434,548	....

[a] The Mexican peso had an average value of $0.4939 in 1925 and $0.483087 in 1926.

per cent. The production of antimony increased 86.94 per cent. The State of Coahuila has the only highly developed coal fields in Mexico. The 1926 output was estimated at 800,000 metric tons, a considerable decrease from the 1,302,000 tons produced in the preceding year. A large percentage of the 1926 production was converted into coke.

The mining industry in Mexico in 1927 showed marked improvement over the previous year, with better feeling between the government and the mine operators. According to government estimates the tonnage of ores treated declined 4.05 per cent as compared with 1926, the reduction being attributed to lower metal prices and higher government taxation. The *Engineering and Mining Journal* (New York) published the following table covering the years 1926 and 1927, which indicates the production for the two years:

	1927[a] Kilos	1926 Kilos
Gold	22,000	24,083
Silver	3,110,000	3,057,268
Copper	56,474,000	53,768,192
Lead	238,503,000	210,794,894
Zinc	130,634,000	105,836,568
Antimony	1,707,000	2,614,444
Arsenic	8,205,000	6,458,224
Graphite	6,510,000	4,484,548
Mercury	78,000	45,416

[a] Production for last two months estimated.

In October, 1927, the United States Bureau of Foreign and Domestic Commerce reported that the downward trend in Mexican petroleum production exhibited from month to month in 1926 continued consistently in 1927. The January production of 6,078,726 barrels was below the minimum established for 1926 in December of that year, and the output continued to decline during succeeding months until 5,320,680 barrels were produced in June, 1927, although a slight recovery to 5,488,421 barrels followed in July.

One conspicuous cause of the decline was the refusal of the Mexican government to grant drilling permits to American companies which did not change their properties for "concessions" before December, 1926, as required by the petroleum law of 1925. No new permits were granted to American or other foreign-owned producing companies which did not make this change, and attempts to drill without permits have been stopped. Naturally, the refusal of permits to a group of companies representing approximately 75 per cent of the oil output of the country has prevented the bringing in of sufficient new production to make up for natural exhaustion. The following table shows the declining production of crude oil in 1926.

MEXICAN PRODUCTION OF CRUDE OIL IN 1926

Month	Heavy crude Barrels	Light crude Barrels	Total Barrels
January	6,496,073	3,022,792	9,518,865
February	6,077,700	2,481,638	8,559,338
March	5,484,641	2,860,780	8,345,421
April	5,347,966	3,372,390	8,720,356
May	5,141,654	3,150,177	8,291,831
June	4,755,718	2,624,062	7,379,780
July	4,396,584	2,546,928	6,943,512
August	4,130,071	2,582,630	6,712,701
September	3,975,771	2,480,178	6,455,949
October	4,262,658	2,553,803	6,816,461
November	4,118,635	2,339,100	6,457,735
December	3,905,191	2,313,833	6,219,024
Total	58,092,662	32,328,311	90,420,973

The official statistics of Mexico show the accompanying record of oil shipments during 1926.

COMMERCE. The foreign trade of Mexico in 1926 amounted to 1,053,874,337 pesos, showing the expected falling off from the total of 1,073,480,000 pesos in 1925. During 1926 exports amounted to 681,428,061 pesos and imports to 372,446,276 pesos and in 1925 exports were 682,484,000 pesos and imports 390,996,000 pesos. Converting the foregoing figures at the average rate of exchange for the two years, exports and

PETROLEUM EXPORTS FROM MEXICO IN 1926

Month	From Tampico Barrels	From Tuxpam Barrels	From Puerto Mexico Barrels	From other points Barrels	Total Barrels
January	6,565,993	4,806	20,354	9,334	6,600,487
February	6,709,405	1,925	6	17,901	6,729,237
March	8,696,434	9,165	86,462	21,147	8,813,208
April	7,291,135	22,455	18,958	24,582	7,357,130
May	8,278,621	4,378	53,320	22,091	8,358,410
June	6,984,076	39,476	24,858	15,524	7,063,934
July	7,504,599	112,673	49,867	9,875	7,677,014
August	5,938,207	149,903	24,173	1,761	6,114,044
September	5,551,699	23,827	48,357	1,679	5,625,562
October	5,641,715	79,486	66,844	3,894	5,791,939
November	5,292,173	6,284	73,121	2,591	5,374,169
December	4,948,557	237,875	27,406	3,101	5,216,939
Total	79,402,614	692,253	498,726	183,480	80,722,073

imports in 1926 amounted to $329,129,753 and $179,791,551, respectively, and in 1925 exports were $338,465,000 and imports $192,761,000. The actual decrease is greater therefore than it appears at first glance.

According to United States figures imports from Mexico amounted to $169,368,000 and exports to $134,994,000; in 1925 imports were $178,835,000 and exports $144,720,000. It is evident therefore that during 1926 American exports to Mexico decreased by $9,726,000, or approximately the same as the decline in imports which was $9,467,000. This slump continued into 1927 and affected practically all other countries as well as the United States.

For the first four months ended Apr. 30, 1927, exports from the United States to Mexico were $38,044,159 and imports $53,880,119, as compared with the corresponding figures of $48,375,525 and $66,061,813, respectively in a like period in 1926. Thus in the first third of the year 1927 American exports to Mexico decreased by over $10,331,000 and imports by $12,182,000 from the low figures of 1926.

FINANCE. According to the *Journal of Commerce* (New York) for Dec. 28, 1927, the two measures fixing the 1928 budget which were delivered to the Chamber of Deputies by Luis Montes de Oca, Secretary of Finance and Public Credit, revealed that actual revenue in 1927 will be about 45,000,000 pesos lower than the original estimates of 335,000,000. Revenues for 1928 have been calculated at 290,000,000 pesos, a sum considered sufficiently large to warrant the disbursements of the period without the danger of a lack of balance when the year ends. Revenues for 1927 and for 1928 thus would be considerably less than those for 1925 and 1926. In 1926 the federal revenue collected amounted to 317,000,000 pesos. No increase in taxes was contemplated nor recommended. The disbursements called for amount to 289,900,000 pesos, including 20,000,000 pesos for service on the debt. The revenue of the republic was fixed at an estimated total of 290,000,000 pesos, a sum of which the principal items are: Import tax, 63,000,000 pesos; internal revenue stamp tax, 39,400,000; consular charges, 30,000,000; tax on manufactures, 18,000,000; income tax, 16,000,000; mining tax, 14,000,000; alcohol tax, 14,000,000. In so far as concerns the taxes derived from the production and exportation of petroleum, they have been calculated at an approximate return of 13,700,000 pesos, and 6,300,000 pesos, respectively.

Disbursements for 1928 amount to 289,000,000 pesos, an amount less by 100,000 pesos than that corresponding to revenue. Of this sum the branches which represent the heaviest expenditures are: War and Marine, with 84,500,000 pesos; Public Instruction, 27,000,000; Finance and Public Credit, 26,000,000; and Communications and Public Works, 25,000,000. The government will continue to meet the service of the public debt, especially abroad, and for this intended to devote in 1928, in addition to the figures stated, any excess of revenues over the anticipated 290,000,000 pesos.

COMMUNICATIONS. In 1925 there entered at all the ports of Mexico 4178 vessels of 8,364,362 tons and cleared 4216 vessels of 8,394,614 tons. The railways of Mexico total about 14,000 miles. The return of the National Railways of Mexico (see preceding YEAR BOOK) to the management of foreign bondholders has resulted in a bettering of service The railroad bed and rolling stock in particular show a great improvement, especially on the line running to the banana centre at El Hule. During the year the Mexican Railroad completed its tentative programme of electrification between Cordoba and Esperanza, a distance of 45 miles. It embraces the high grade section of the road between Vera Cruz and Mexico City and makes the former port more than ever the natural entrepôt for cargo intended for distribution in Mexico City. It was possible to decrease the running time and to give much better service for both passengers and freight. During April it was reported that slow but steady progress was being made in the construction of the Kansas City, Mexico and Orient Railroad northeast from Marquez, Mexico, to Ojinaga, the crossing point on the Rio Grande opposite Presidio, Tex., 75 miles distant. The first 25 miles of this extension was expected soon to be opened for traffic and the remainder was to be pushed to completion as rapidly as possible. This section traverses the fertile Conchos Valley, where cotton growing is carried on. There was a further gap of 75 miles between Presidio and Alpine, Tex., but work on this section was expected to begin in 1927. The new line of the Southern Pacific from Tepic to La Quemada in Mexico, 103 miles, which provides a through line from the southwestern part of the United States to Mexico City, was opened to through traffic on Apr. 15, 1927.

GOVERNMENT. Under the constitution of 1917, executive power is vested in the president, elected by direct popular vote for four years and ineligible for reëlection; legislative power in the Congress consisting of the House of Representatives elected for two years by universal suffrage, and the Senate, comprising two members from each State, elected in the same manner. President in 1927, Plutarco Elias Calles (elected July 6, 1924; assumed office Nov. 30, 1924). See ARBITRATION, INTERNATIONAL, under *The General Claims Commission.*

HISTORY

SITUATION AT THE BEGINNING OF THE YEAR. The outstanding events at the beginning of the year were undoubtedly connected with the questions of the oil concessions, the ownership of land and the so-called Catholic revolt against the decrees of the government. The roots of these questions were discussed in the previous YEAR BOOK. As noted therein the provisions of the new oil law became operative on January 1. The first move made by President Calles was the request from the Department of Industry, Commerce, and Labor for a list of all companies which had not met the provisions of the new laws. As soon as this list was drawn up the activities of the government were confined to the canceling of drilling permits and the suspension of drilling operations in fields where owners had not adhered to the government regulations concerning the ownership of property. Naturally American interests were seriously affected by these measures of the Mexican government. The Mexican courts were appealed to in order to get an injunction preventing the legislative and executive branches of the government from carrying out their intentions. Temporary injunctions were granted in several cases restraining the President's order for a short period of time. Permanent injunctions were not granted in any instance.

In the meantime the Mexican government announced that a vast majority of the companies operating in the oil fields had accepted the new regulations. This announcement was met by a semi-official statement from the State Department at Washington that those companies which opposed the Mexican law and refused to abide by its provisions represented 88 per cent of the oil production in Mexico. It is only necessary to study the figures on oil production given above to see the disquieting effect that the controversy had on the production of crude petroleum and consequently upon the exports and imports of the country, for, after all, if Mexico does not export her maximum amount of oil, she is unable to buy those things abroad which she would in the normal course of events. As the year advanced the Mexican government and press took a more favorable attitude toward the economic necessities of the country and it was not surprising to find at the very end of the year that she had virtually reached a workable decision in the dispute.

As was to be expected, the attempt to enforce the "confirmatory concession" law was met with severe criticism and comment in the United States and was the subject of almost constant discussion and debate in the short session of Congress which ended March 4. In response to a Senate resolution, Secretary of State Kellogg on February 16 gave that body statistics on the matter. According to his figures there were 58 individuals or corporations who owned or claimed land in Mexico which was generally placed under the heading of oil lands. He stated further that only four of the 58 had applied for confirmatory concessions and that the remaining 54 controlled about 90 per cent of the active producing fields of Mexico and produced about 70 per cent of the total crude production. These figures were assailed by Luis Morones, the Mexican Minister of Industry, Commerce and Labor, who claimed that there were only 16 American companies which owned land and that half of these had applied for the necessary confirmation of their holdings. This wide divergence of American and Mexican figures was the rule rather than the exception in any discussion of the oil difficulties.

The second Mexican law passed under the constitution of 1917 which caused considerable concern in the United States was that relating to alien possession of land. This law became operative on January 21, and under its provisions all aliens who owned land before its passage were compelled to file a statement of such ownership with the Department of Foreign Relations or forfeit ownership in case of failure to do so. The most controversial point of the law was that which compelled foreign corporations which possessed more than 50 per cent of the interest or stock of any company owning rural property for agricultural purposes to dispose of its interests above 50 per cent within a period of 10 years. The provisions of the law will be found in the 1925 Year Book.

The United States contended that this was a confiscatory measure and one that it could not accept. Whether or not it was because the oil controversy overshadowed the land controversy it is certainly true that the land measure went into effect smoothly and practically all foreign land owners met the regulations prescribed by the government. While these measures were continuously before the public of both the United States and Mexico, there was a strong demand in certain quarters in the United States for the submission of the troublesome acts to arbitration, either to the Hague Tribunal or the General Mixed Claims Commission, which had been established by the Claims Conventions between the United States and Mexico in 1923.

On January 25 the United States Senate passed a unanimous resolution recommending that the oil and land laws and their attending causes of friction be arbitrated. This gesture was somewhat marred by the inclusion of a clause aimed at the protection of the lives and property of nationals of the United States. This attitude on the part of the Senate was at direct variance with that of President Coolidge who let it be known that he was opposed to arbitration inasmuch as the only issue at stake was whether American owned property in Mexico was being confiscated. The press commented on the apparent divergence of opinion between the President and Secretary of State Kellogg who leaned toward the arbitration scheme.

The other outstanding feature of Mexican history at the beginning of the year was the religious question. A discussion of the attitude toward the Catholic Church by the government was presented in the preceding Year Book. When the full force of the restrictive measures was felt by the Church and its communicants there were widespread demands in many quarters for armed revolt against the government which the Church time and again accused of Bolshevism. Sporadic outbreaks were reported in the first two months of the year and the government was certain, despite the denials of the episcopate, that the religious element was at the bottom of them. While the so-called revolts were widespread, they did not seem to present an insurmountable obstacle to the government troops, who had little difficulty in suppressing them.

The most conspicuous figure involved in the revolutionary movement was Bishop Diaz, secretary of the episcopate, who was arrested on January 10 and deported to Guatemala. After making his way to New York, Bishop Diaz denied that he had anything to do with the revolutionary movement and stated that his deportation was unjust. Despite this denial the Calles government from time to time published documents purporting to show the connection between the enforcement of the religious and educational laws passed under the constitution of 1917 and the revolts throughout the country. The deportation of several other important members of the Catholic episcopate occurred from time to time during the year.

The New American Ambassador. In the first week of June, Ambassador Sheffield returned to the United States on a leave of absence from Mexico City. After a conference with Secretary of State Kellogg, he visited President Coolidge at his summer "White House" in the Black Hills. Shortly after a talk with the President he handed him his resignation which was immediately accepted to take effect upon the selection of a successor. Dwight W. Morrow, long connected with the banking firm of J. P. Morgan & Co., was appointed to succeed Mr. Sheffield by President Coolidge on October 6. Mexican securities on the New York Stock Exchange made rapid and substantial advances immediately after the announcement of Mr. Morrow's appointment was made public.

The October Revolution. Throughout the year there was considerable discussion and campaigning in connection with the presidential campaign to be held in 1928. Under Mexican law President Calles was ineligible to succeed himself, and, consequently, the field was wide open. The three chief candidates for the office were former President, General Obregon, Gen. Francisco Serrano and Gen. Arnulfo Gómez. Generally speaking, the three candidates held the same tenets as did President Calles, and promised to support the laws concerning oil concessions, the alien ownership of land, and the Church.

During the summer there had been considerable campaigning in a comparatively quiet manner, but in October a real revolution, which for a time threatened to attack the safety of the State, broke out under the leadership of Generals Serrano and Gómez. President Calles took drastic steps immediately and on October 4 the federal troops, which, for the most part, remained loyal, captured General Gómez and several of his important leaders. They were given short shrift, being courtmartialed and shot at once. In a statement made public the government said that it had known about these revolutionary activities for some time and was prepared to put them down as soon as they started, but felt that it was a wiser plan to wait for an overt act. The revolution spread over nine states but was ruthlessly suppressed and the leaders were executed. On Nov. 3, General Gómez was captured and put to death in the State of Vera Cruz, thus ending the abortive revolution, in which only a small part of the army broke away from the Calles government.

The execution of Serrano and Gómez seemed to leave the stony way to the presidential chair entirely in the hands of ex-President Obregon, who from time to time had gone on record as firmly supporting President Calles and his policies. The revolution and its quick suppression strengthened the position of President Calles considerably and showed the world that he was the master of the situation in Mexico. Although nothing was definitely proved, rumors were rife that the revolutionists had the moral and financial support of the clerical group of Mexico as well as of the conservative element in general.

Situation at the Close of the Year. The year closed with the relations between the United States and Mexico on the most friendly basis in years. Ambassador Morrow had apparently made a profound impression on President Calles and the Mexican government by his open, friendly, and non-superior attitude. He had told American citizens not to forget that they were in the nature of guests of the Mexican government and must abide by the rules and laws of the country. To the good will engendered by Ambassador Morrow must be added the tremendous emotional effect of "Ambassador" Lindbergh, when he arrived in Mexico City after a nonstop flight from Washington on the morning of December 14. See Aëronautics.

The oil controversy appeared to be well on the way toward settlement by the end of the year. The first step in this settlement was a favorable decision by the Mexican Supreme Court in a case involving the Mexican Petroleum Company. Although the Mexican government did not take over the property of any oil company because of failure to comply with the provisions of the law, it did, as noted above, cancel drilling permits. The Mexican Petroleum Company obtained an injunction from a lower court preventing the government from interfering with its activities on the grounds that certain provisions of the oil law were unconstitutional. In November the Supreme Court upheld the contentions of the company and declared that provisions 14 and 15 of the oil law were unconstitutional on the grounds that the oil law deprived the company of its rights. Of course this decision merely affected this one company, and, according to Mexican judicial procedure, it would take several similar decisions before the provisions of the law would be unconstitutional as affecting all companies. Nevertheless, this particular decision was hailed as a triumph for the American contention that the oil law was retroactively confiscatory. The Department of Industry, Commerce and Labor announced that it would conform to the court's decision.

Late in December, the Mexican Congress passed a law which virtually abolished the causes of friction between the Governments of the United States and Mexico over the oil lands. The new measure did away with the 50 year confirmatory concessions which were substituted by article 14 of the oil law for titles obtained by oil companies before May 1, 1917, and confirmed contracts made before that date for the length of the contracts. Editorial opinion throughout both countries hailed the new law as the beginning of a rapprochement between the American government and American capital, on the one hand, and the Mexican government on the other.

One untoward affair cast considerable gloom over the better Mexican-American relations near the end of the year. This was the publishing by the chain of Hearst newspapers of documents purporting to have been stolen from the Mexican archives. Generally speaking the documents attempted to show that the Calles régime was attempting to destroy the influence of the United States in Central America, particularly in Nicaragua, and at the same time was seeking to substitute Mexico as the dominant nation there. There were also several documents which aimed to prove that Mexico was disseminating Communistic teachings wherever possible. The most sensational of all the documents published was one appearing on December 9, which authorized the payment of $1,215,000 to four United States Senators.

The publishing of this charge resulted in the appointment of a Senate committee to investigate the entire matter. This committee held its first meeting on December 15, when, from the documents turned over to it by Mr. Hearst, it was revealed that the four Senators who were supposed to get the cash from the Mexican government were Borah, Norris, La Follette and Heflin. Needless to say, these four men branded the document as an impudent forgery and stated in no uncertain tones that they had never received one cent from the Mexican government and had never been approached in any way by its agents.

The Senate called innumerable witnesses, including Mr. Hearst and his aids who were responsible for the publishing of the documents. The chief witness for the authenticity of the documents was Miguel Avila, who claimed to have seen them extracted from the Mexican state files, both at Mexico City and in New York City (from the files of Consul General Elias). A whole mass of testimony was taken, as a result of which newspapers throughout the country asserted the documents were forgeries and accused Mr. Hearst of willful neglect for failure to check their authenticity before publishing them. The investigation was still under way when the year closed. The Senate Committee investigating the affair stated as early as December 19 that there was not the slightest shred of evidence connecting Borah, Heflin, La Follette or Norris with any "slush fund." It was asserted that Avila had been involved in several matters of a similar nature.

In a New Year's message to the Mexican people delivered on December 31, President Calles urged unity between Mexican peoples and abandonment of prejudices. "The development of an ideal programme of revolutionary construction which Mexico needs and the final aims which we are pursuing for the betterment of the masses deserve and require the cooperation of all those who really love their country in order to achieve their fulfillment. These aims which tend toward better general order, make for the progress of the country and justify the abandonment of prejudices, the forgetting of rancors and the spiritual unity of all. One of the leading chapters of the events of recent years was the resistance by the high Catholic clergy to the laws. They were persistent and malevolent in fomenting discontent and rebelliousness among the groups of believers—fanatics either through ignorance or deception. These activities culminated in uprisings in various places, which naturally carried all sorts of bad consequences. All this we sincerely lament. I can announce to the country the pacification of those groups which were rebelling on account of religious motives. Presently there will exist but a few insignificant ones, in Jalisco, Michoacan and Guerrero, which I will exterminate in a short time."

Referring to the difficult economic situation the President said: "But timely economic foresight and the attainment of a strong policy of honest and orderly administration has enabled us to live to attend regularly to public services and not to interrupt projects of a reconstructive nature. This was particularly true in education, irrigation, and roads." There was only a short reference to foreign relations in the entire message: "Along with the undeniable improvement in domestic conditions, there has been ushered in an era of the most cordial and intelligent relations between Mexico and all other nations. This obviously must contribute to the easier development of progress in national life. With only one year before the end of our period, we have the right to hope the people may come to realize that our work was disinterested and impersonal. Our aims always have been to strengthen the character of our nationality. We have wanted to attain real, not merely apparent, aggrandizement for the nation by improving every aspect of the economic, moral, and political life of the masses."

MICHIGAN. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 3,668,412. The estimated population on July 1, 1927, was 4,490,000. The capital is Lansing.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	1,418,000	38,995,000	$33,146,000
	1926	1,593,000	54,162,000	39,588,000
Hay	1927	3,081,000	4,804,000[a]	52,665,000
	1926	2,951,000	4,194,000[a]	57,688,000
Wheat, winter	1927	891,000	19,156,000	22,987,000
	1926	979,000	17,916,000	21,858,000
Wheat, spring	1927	6,000	114,000	137,000
	1926	5,000	82,000	100,000
Oats	1927	1,617,000	54,170,000	26,002,000
	1926	1,570,000	51,180,000	20,724,000
Potatoes	1927	289,000	23,120,000	20,808,000
	1926	249,000	29,880,000	35,856,000
Beans, dry	1927	566,000	5,004,000	15,282,000
	1926	552,000	6,624,000	18,547,000
Rye	1927	178,000	2,617,000	2,829,000
	1926	173,000	2,336,000	1,822,000
Barley	1927	186,000	5,301,000	4,029,000
	1926	133,000	3,790,000	2,464,000
Sugar beets	1927	99,000	688,000[a]	
	1926	100,000	793,000[a]	5,552,000

[a] tons.

MINERAL PRODUCTION. The mining of iron ore, in which the State ranked second in 1925, went on with increased activity in 1926. There were mined in 1926, as estimated from producers' shipments, 16,699,984 long tons of iron ore, as against 15,254,003 tons in 1925; the ore mined in 1926 had a total value of $43,932,982, that in 1925 a value of $40,926,315. Pig iron was produced within the State, and shipped to the quantity of 638,282 long tons in 1926; in 1925 of 831,435 tons. This product was valued at $13,180,113 for 1926 and $18,452,346 for 1925. Production of copper rose to 175,381,565 pounds for 1926, from 155,157,488 pounds for 1925; in value it was $25,553,419 for 1926 and $22,032,363 for 1925. The State's coal production was some 649,000 short tons in 1926 and in 1925, 808,233 tons; the value of the coal mined in 1925 was $3,391,000. Coke production grew to 1,826,638 short tons all from by-product ovens, for 1926, from 1,571,118 tons for 1925; production for 1926 was valued at $12,713,083 and for 1925 at $11,708,519. Production of cement yielded 12,037,400 barrels in 1926; in 1925, 10,936,181 barrels. Shipments of cement in 1926 were valued at $19,499,788 and in 1925 at $17,511,908. Salt production was 2,260,320 short tons in 1926; in 1925, 2,172,600. In value it was $7,594,418 in 1926 and in 1925, $7,710,331. Gypsum was produced to the quantity of 649,053 short tons in 1925, the latest reported year, and of 577,526 tons in 1924; in value, $5,447,294 in 1925 and in 1924, $5,950,822. Clay products in 1925 were valued at $7,396,071; for 1924 at $10,246,935. Stone, sand and gravel, and calcium chloride were produced in important quantities. The total value of the State's mineral products, duplications eliminated, was $122,212,254 in 1925; in 1924, $114,239,836.

FINANCE. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of general departments of the State government in the fiscal year ending June 30, 1926, were $45,204,560; their rate per capita was $10.42. They included $15,773,928 apportioned for education. Totals not included in the above, of $107,335 expended in public service enterprises, $4,946,279 in interest payments and $21,074,675 in permanent improvement outlays, brought the aggregate of State expenditure to $71,332,849. Of this, $19,555,439 was for highways; $3,545,551 being for maintenance and $16,009,888 for construction.

Revenue receipts were $77,989,157; or per capita, $17.97. Of their total, property and special taxes yielded 50 per cent, attaining a rate per capita of $8.99. Earnings of departments and compensation paid the State for officials' services supplied 7.7 per cent of revenue; 31.1 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a tax on gasoline sales.

Net State indebtedness on June 30, 1926, was $75,845,438, or $17.48 per capita. Property subject to ad valorem taxation bore a valuation of $7,341,790,181. State taxes levied were $28,480,305, or $6.56 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 8,355.96. New construction in 1927 as reported by the *Railway Age* was 22.15 miles of second track.

EDUCATION. The enactment of the Turner bill, appropriating $1,000,000 from the general fund of the State for distribution among the poorer school districts, was characterized by W. H. Pearce, Superintendent of Public Instruction, in the *Journal* of the National Education Association as the most important educational development of the year. Districts having a school tax rate of 10 mills or more on the dollar of assessed valuation were to share in the distribution. Their proportionate shares were to be determined in each case by the amount of excess in the average school membership of the district, in its ratio to equalized valuation, over the like ratio, as averaged for the entire State. This system of educational equalization payments was one of the most noteworthy of the many enacted by Legislatures of the several States in the course of the year.

CHARITIES AND CORRECTIONS. The State Welfare Department, as functioning in 1927, included the State Welfare Commission, with powers of regulation over the parole of patients from certain institutions, and duties of inspection of jails, maternity hospitals, and boarding homes for children, and control over probation officers and county agents; it included also four commissions in charge of groups of State institutions. These were the State Hospital Commission, State Prison Commission, State Corrections Commission and State Institute Commission. Hospitals, with the numbers of their inmates on Oct. 1, 1927, were Kalamazoo State Hospital, 2427; Pontiac State Hospital, 1666; Traverse City State Hospital, 2088; Newberry State Hospital, 1108; Ionia State Hospital, 622; Farm Colony for Epileptics, 851; Michigan Home and Training School, Lapeer, 2857. Prisons were: State Prison, Jackson, 3353; Michigan Reformatory, Ionia, 1796; Branch Prison, Marquette, 974. Places of correction were: Boys' Vocational School, Lansing, 572; Girls' Training School, Adrian, 292. Schools under the Institute Commission were: School for the Deaf, Flint, 326; School for the Blind, Lansing, 156; Employment Institution for the Blind, Saginaw, 59; State Public School, Coldwater, 326. The patients in State hospitals for mental disease on Jan. 1, 1927, as reported by the Department of Commerce, numbered 7765.

LEGISLATION. The State Legislature convened in biennial session January 5. It enacted a new criminal code to go into effect September 5. By this code it was made possible for a criminal defendant to waive trial by jury if he chose, and to be tried by a judge alone. Fourth offenders, by a provision cognate to that of the Baumes laws of New York, were made subject, after September 1, to a sentence of life imprisonment. An effort to provide capital punishment for murderers failed through opposition in the Senate. A bill to allow flogging as a punishment for robbery with arms was enacted; it limited the punishment to the administration of six lashes at one time, but permitted repetition of the flogging, as the sentencing judge might direct. The penalty for breaking and entering in the night was made 15 years; for the same act in the day, five years. In order to meet a deficiency in the highway funds left by the Groesbeck administration, there was enacted a tax of 3 cents a gallon on motor fuel gasoline sales. The State tax commission was abolished by statute, and a new commission of three members was created in its place; this proceeding had the effect of removing from office the previous chairman of the tax commission, an appointee of the Groesbeck administration. A deficiency appropriation act imposed a tax of $4,600,000 of which sum $2,000,000 was required of Wayne County. A traffic code enacted at the session abolished the previous statutory speed limit of 35 miles an hour for motor vehicles on the highways, outside cities and villages. Among other laws passed were one restricting the operation of drug stores to those owned by licensed pharmacists, or in case of corporations, unless 25 per cent of the stock were so owned; and one requiring the licensing of anglers, and providing a $1 license fee to be used for trout propagation.

POLITICAL AND OTHER EVENTS. Governor Fred W. Green took office January 1, and declared that he would seek to correct the highway finance system of the State as developed by his predecessor. He recommended in March that plans for the State prison to be erected at Jackson should be abandoned as likely to cost a further $5,000,000. According to his report work on the prison from its start in 1923 up to Jan. 1, 1927, had cost $2,656,006, leaving a deficit beyond appropriations of $1,904,404. The prison as designed was to hold 5000 convicts. The State Supreme Court in January declared unconstitutional a law of 1925 enabling State or local highway commissioners to designate lands for condemnation without further process to determine the public need for the lands.

In the criminal procedure there developed unexpected consequences of laws passed in 1926. The Legislature had made even minor infractions of the prohibition law felonies, punishable with imprisonment, and it had also enacted a measure providing for the longer imprisonment of those convicted for fourth felonies. Under this combination of statutes, it became possible to send a man guilty of previous offenses to prison for life because a raid on his home had disclosed a pint of liquor. Fred Palm, a resident of Lansing, was so sentenced under these circumstances in November, advocates of prohibition approving. Under the feature of the new law allowing the accused to waive jury trial, it was reported that up to September 5 out of 118 defendants in the Recorder's Court at Detroit 55 had dispensed with jury trial.

Legal proceedings against Benjamin Purnell and the religious colony known as the House of David resulted, November 10, in a court order placing the common property of the colony in the charge of an outside receiver, and removing Purnell from the colony. Prominent in the litigation of the year was a suit against Henry Ford, the automobile manufacturer, brought by Aaron Sapiro and tried during March at Detroit. The suit was for libel alleged to have been committed by Ford's periodical, the *Dearborn Independent*, in attacking Sapiro in common with other Jews. Sapiro asserted his purpose to be opposing of unfounded attacks on his race. A mistrial occurred, and the case was re-tried. After efforts had been undertaken by the plaintiff to require the appearance of Ford as a witness, the trial was discontinued and the suit settled out of court, Mr. Ford publishing a statement expressing his regret for the statements to which exception had been taken. See Jews.

On the newly created State tax commission, two of the members opposed the effort of the third, acting on behalf of the rural element, to have earnings form the basis of valuations (November 1). The effect of such a step would have been to increase heavily the share of Detroit in the total assessment of the State.

In Detroit a municipal election held November 8 resulted in the defeat of Mayor John W. Smith, running for reëlection on an anti-prohibition platform, and in the election of John C. Lodge, supported by the prohibition element, but without having bound himself to any policy on the subject. At a special election on June 28, the people of Detroit ratified an ordinance for the construction of an international bridge over the Detroit River to connect the city with Windsor, Ont. The City Council in June selected a site for a city airport. During several months of the year the Ford motor works ceased operation, in order that changes might be made in the plant to permit of the production of a new model of car, and extensive unemployment resulted. Rules limiting the freedom of Canadians to cross into Detroit to work there daily went into force, under the authority of the Federal government, in the course of the year. A new home of the Detroit Institute of Art was opened October 7.

Officers. Governor, Fred W. Green; Lieutenant Governor, Luren O. Dickinson; Secretary of State, John S. Haggerty; Treasurer, Frank D. McKay; Auditor, Oramel B. Fuller; Attorney General, William W. Potter; Superintendent of Public Instruction, Webster H. Pearce.

Judiciary. Supreme Court: Chief Justice, Nelson Sharpe; Associate Justices, Howard Wiest, George M. Clarke, John E. Bird, John S. McDonald, Richard C. Flannigan, Walter H. North, Grant Fellows.

MICHIGAN, University of. A coeducational State institution of higher education at Ann Arbor, Mich.; founded in 1837. The University, made up of ten colleges and schools, admits graduates of accredited high schools to the college of literature, science, and arts, to the college of engineering and architecture, to the college of pharmacy, and to the training school for nurses, as well as to the special programme for dental hygienists and the curriculum in physical education. In 1926–27 the enrollment was 13,257, of whom approximately 33 per cent were women, while 63 per cent were inhabitants of the State of Michigan, and the remaining 37 per cent, with the exception of 287 foreign students, from all parts of the United States. Of the total enrollment 5630 were in the college of literature, science and arts, 1542 in the colleges of engineering and architecture; 666 in the medical school; 89 in the school of business administration; 236 in the nurses' training school and 804 in the graduate school. The registration for the 1927 summer session was 3666. The teaching staff was composed of 742 members. The University libraries contained 649,912 volumes. For current expenses, the State appropriated $4,600,000, while over $2,500,000 was derived from other sources. A new architectural building was constructed during the year, and the stadium was completed for the autumn games. The new University Museum was also completed by the end of the year, and construction was begun on the Michigan League Building for Women, to cost about $750,000 and having an endowment of $250,000. President, Clarence Cook Little, Sc.D., LL.D.

MIDDLEBURY COLLEGE. A coeducational, non-sectarian college at Middlebury, Vt.; founded in 1800. For the autumn term of 1927 a total of 643 students were registered as undergraduates, and 11 as graduates, of whom 300 were women and 354 men. The summer session enrollment was 512. There were 63 members on the faculty, including administrative officers and those on leave of absence. The productive funds of the College amounted to $2,837,274.47, and the income to $302,974.42. The library contained 50,000 volumes. Gifts to the College in 1926–27 totaled $60,535.32. President, Paul D. Moody, D.D.

MIDDLE CONGO. See French Equatorial Africa.

MIETHE, Adolf. German chemist, died in Berlin on May 5. He was born on Apr. 25, 1862, at Potsdam, and educated at Charlottenburg. For some years he held the chair of chemistry in the Berlin Technical Institute, where he was active in his research work. One of his special fields was color photography and he had several patents on methods for producing photographs in natural colors. He was practically unknown to the public until 1924, when his announcement that he had found a method of changing elements and had succeeded in converting mercury into gold startled the whole world. His method involved the use of a high electric charge, but the enormous expense involved in the conversion by electrical currents prevented it from becoming of practical value, and doubt was cast on the value of the experiment from a scientific standpoint. In 1925, Prof. H. H. Sheldon of New York University duplicated, with funds supplied by *The Scientific American*, Professor Miethe's experiment as described in detail by him. Exhaustive tests brought no results and Professor Sheldon expressed the belief that the reason Dr. Miethe had found gold was that he had used Spanish mercury, which contains a small quantity of gold. Later several German authorities also failed to duplicate the feat.

MILITARY PROGRESS, General. There was not much to chronicle in the way of military progress of the world's nations during the year 1927. A survey revealed danger zones whose elimination could be brought about only by leaders arising who are determined to preserve peace. An unannounced author, "F. F.," contributing his thoughts in the *Infantry Journal* predicates his interesting articles on the political and economic problems of each continent. They are worth summarizing.

President Coolidge has stated plainly that Washington would not meddle with Mexico's religious issue. The revolution over the presidential candidacy of Obregon, resulting in drastic and prompt action on the part of President Calles, was cut short by the summary execution of the leaders Serrano and Gómez and a hundred anti-Calles military leaders. In South America the Tacna-Arica controversy between Chile and Peru remains unsettled. Chile controls these provinces. Peru cannot wage war successfully against Chile, and Bolivia stands by watchfully waiting. She wants an outlet to the Pacific.

In South Africa native races clash with the dominating whites. The Nile country, rich in resources, is still the prize that nations have fought for in centuries past. Egypt effectively cut off from powerful allies can do little alone; yet is a prime breeding ground for trouble. Valuable as she is to Great Britain the latter will hardly relinquish to others her favored position.

In Europe, Russia's increasing efforts to foster world revolution, her avowed policies and her standing army, constantly threaten the peace of Europe. Finland, Estonia, Latvia, Lithuania, Poland, Czechoslovakia, Bulgaria, and Greece are all engaged in more or less serious disputes with their neighbors and suffering from internal political struggles. Russia is unified and her government highly centralized. Her armies moving westward would have a tremendous initial advantage over the disorganized forces that could be assembled in opposition, continues "F. F." The other European powers are drawing closer together. Economic interests and the necessity for common defense are responsible for this. Great Britain and Russia, though widely separated geographically, have conflicting interests in India, in China and in all the territory from the western end of China to the Black Sea. The influence of Russia in China, Afghanistan, Persia, and Turkey is powerful.

In western Europe and in the countries bordering on the Mediterranean the British influence is increasing. England's recognition of Italian supremacy in the Adriatic and especially Albania has strengthened her political ties with Italy.

In Spain General Rivera has acknowledged British leadership in the international affairs of Europe. It is recalled that Mussolini said in one of his speeches: "We must be able at a certain time to mobilize 5,000,000 men. We will be able, then, between 1935 and 1940, when I believe there will be a crucial point in European history, finally to make our voice heard and see our rights recognized."

The defense of India is as troublesome as anything else there. Since the Ameer of Afghanistan two years ago secured the removal of the British Resident Minister, Russian influence has supplanted that of Great Britain. Warlike mountain tribes that inhabit Afghanistan and Baluchistan adjoining are under Russian guidance. In Eastern Afghanistan and Khyber Pass the concentration of British forces where they can meet an advance from the north of India shows that Great Britain considers the situation dangerous.

In China the great civil war was still in progress. In the north Chang Tso-lin controlled Manchuria and likewise had possession of Peking. In the south the Nationalist armies occupied the Hankow-Canton area. As December approached its close the ascendancy of Chiang Kai-Shek in Nationalist councils was evident and he again became a factor not to be neglected. But with this difference, and it is important: The influence of Soviet Russia has been minimized if not eradicated and will probably end up with the breaking off of all relations with Russia. The latter of course will not give up easily. Her support of Feng Yu-hsiang and Yen Hsi-Shan, Governor of Shansi, may yet materialize. It appears as if Canton, as a result of the attack on Chang Fah Kwei, the labor leader who drove out Li-Chai-Sum from Canton, was again in the hands of Li and the Nationalist troops. The situation in the north as that in the south presents serious problems. Chang Tso-lin established himself in Peking as generalissimo and thus necessarily had to leave Manchuria to subordinates. Difficulties with Japan have arisen over the new Chinese railway being constructed from Hulutao on the opposite side of the Gulf of Liaotung from Dairen and paralleling the South Manchurian Railway.

The message of President Coolidge to Congress asking for the provision of cruisers and other auxiliary vessels of war leads one on in the discussion and thought whether an issue is raised with that of the Russians at Geneva asking the nations to disarm completely. The Russian proposal, according to P. W. Wilson in the *New York Times*, meant that all nations must disarm completely within a period of four years, troops disbanded, no recruits enrolled and aircraft reserved strictly for civil use; manufacture of munitions, including poison gas, ended forever; the Soviet Republic itself maintains a very vigorous Red army and so these Russian delegates knew these proposals meant nothing and would not be accepted. At least they had a polite hearing by the Preparatory Commission on Disarmament before it adjourned until March, 1928.

What President Coolidge said about "much cooperation by Japan" and inability "to come to an agreement with Great Britain" will hardly end developments but rather begin them again, as will be evident when the Washington Agreement on battleships comes up in 1931.

It is not absolute disarmament on land but limited armament that is wanted. There shall be no surplus of troops available for aggression —but only enough for maintenance of internal order. If one soldier to one thousand civilians is not a menace then our survey of world conditions shows that the whole of North and South America has a strictly limited armament. In the United States including outlying possessions a population of 120,000,000 provides an army of 120,000 soldiers!

In Canada for its 9,000,000 population there might be 9000 troops. Applying the measure, Latin America, Australia, New Zealand, South Seas and the Arctics are demilitarized. Likewise Africa and Southern Asia, excepting Turkey. India's population of 330,000,000 sustains a force of 62,000 British and 187,000 Indians or 249,000 officers and men. The important fact is apparent that limited armament on land applies to almost one-half of the human race. The Far East and Europe alone are affected by the problem. Japan has a large army, some 200,000 men out of 83,000,000 people, or 1 soldier to 415 civilians. However, she is remote from Europe. According to *The Europa Year Book* for 1927, in 1913 there were 4,189,000 men in the various armies, against 3,042,000 in 1925, showing a reduction of 1,147,000. Taking the corresponding population of 475,000,000, it makes one soldier to about 150 civilians.

We are told Europe's sense of security prevents the reduction of armies there to the basis being discussed. It is a security outside itself, as this interesting writer continues, that Europe finds it impossible to organize.

The United States refused to accept the covenant of the League of Nations or join any discussion of diplomatic guarantees. Great Britain signed the pact of Locarno by which it will be remembered she joins the powers in a guarantee of the frontier between France, Belgium and Germany, but declines to extend her guarantees to eastern areas of Europe. The British Dominions have joined the League of Nations and ratified the Covenant but are unwilling to specify more precisely their commitments.

Russia claims disarmament itself is the best security of peace. If the Red army be the accepted figure of 563,000 men, the ratio to her 140,000,000 of population is large—four times that necessary. What about her neighbors? Finland with an army of 29,000 and ratio to population of 1–120; Estonia, 18,000, 1–60; Latvia, 20,000, 1–90; Lithuania, 22,000, 1–90; Poland, 27,000, 1–100; Czechoslovakia, 125,000, 1–110; Rumania, 130,000, 1–130; and Turkey, 120,000, 1–110; or a total of forces 9 times greater than they would be under a non-aggressive limit. Was it due to the fear of Russia?

France has a strength of 673,000 men; Belgium 80,000 and Great Britain 179,000 or a total of 952,000 on a peace footing with complete equipment.

The question of reserves must also enter in any calculations. It is not how many men at the moment are under arms—but how many could be put under arms without delay in event of war.

In Germany, Austria, Hungary, and Bulgaria conscription has been abolished by treaty; in Great Britain, there is voluntary service with no compulsion. In France and other Allied countries conscription has been retained. Conscription does not mean merely that the citizen n time of peace is forced to serve as a soldier. t means short service and larger reserves.

Italy has 248,000 men under arms and second only to France in equipment and efficiency. Italy would not abolish conscription and France could not. It would appear therefore that Europe must abolish conscription would she avoid the peril that confronts her. The discussion of naval armaments is essential, of course, to the solution —but that is discussed elsewhere. (See NAVAL PROGRESS.)

UNITED STATES. In his annual report for 1927 F. Trubee Davison, Assistant Secretary of War for Aviation, comments on the loss of efficiency due to the morale of air officers. The five year programme calling for 1800 planes, 1650 officers and 15,000 enlisted personnel was the most effective possible. The achievements of the Air Corps were the Pan-American circumnavigation flight, the non-stop flight to Hawaii, the visit of the First Pursuit Group, at Selfridge Field, Michigan, to Ottawa, in winter, and the maneuvers at San Antonio, Texas, with ground troops. The War Department contracted with the Curtiss Corporation for 35 of the 0-11 type observation planes for distribution to the National Guard units. Beginning the middle of November three per week were being delivered.

According to the War Department the total enrollment of 39,676 young men for summer training in the Citizens' Military Training Camps was almost four times that of 1921. Fifty-two camps in 33 States were in operation, with one in Porto Rico exceeding 500. The applications for enrollment totaled 57,127, exceeding that of any other year. Three deaths occurred, two from accident and one from disease, a remarkable record for a month's camp and transportation to and from of nearly 40,000 boys. The number of young men trained in these camps since 1921 was as follows: 10,299; 22,199 in 1922; 24,483 in 1923; 34,082 in 1924; 33,614 in 1925; 34,194 in 1926; 39,676 in 1927, or 197,767 in the seven years.

OFFICERS RESERVE CORPS. The 1927 strength of the Officers Reserve Corps is 107,838, of which number 38,552 had commissioned service in the World War, 31,542 had enlisted service and 37,744 no service at all. After seven years of experiment new revised policies were promulgated Jan. 10, 1927. These policies provide for a definite procurement objective, an objective that will take care of, first, reservists for active and inactive units of the Regular army; second, those required for the Philippine and Hawaiian Departments; third, those for industrial mobilization; fourth, for branch installations for peace time organizations and first mobilization; fifth, Corps Area headquarters; sixth, for assignment to National Guard units; seventh, for all Organized Reserve units of the first phase of mobilization in War Department General Mobilization Plan; eighth, for the 27 Organized Infantry Reserve and six Organized Cavalry Reserve Divisions; ninth, a surplus over and above these requirements to permit when practicable the assignment of officers residing in a unit area to a unit of the Organized Reserves.

In regard to promotion, which seems to be uppermost in the minds of the Reservist as well as the Regular army, the new policy provides for it only when the officer has a certificate of capacity, and when there is an appropriate vacancy under peace time procurement objective, and when he shall have served a minimum time in grade as follows; 2nd lieutenant four years; 1st lieutenant eight years; captain eight years; major six years; lieutenant-colonel four years.

There is no doubt that the United States is the most liberal in this matter. In Great Britain no reservist appointed after Feb. 1, 1924, is entitled to promotion above the grade of lieutenant. In Japan one out of six is promoted above 2nd lieutenant. In Italy a reservist is not promoted until the last man in his class in the regular army has been promoted. The new policy provides further that no reservist who was not in the World War as an officer shall be promoted to a grade higher than that of Major unless he first shall have completed the full courses at the special school of his branch, and at the command and general staff school, and further, no promotions to or in the grade of general officer, except in the case of Federally recognized National Guard officers.

In the matter of reappointments in grade and section upon the termination of his commission provision is made as follows: (a) he must have a certificate of capacity for his present or higher grade; (b) have written record of 200 hours of military work; (c) have been on active duty for three months or longer; (d) have taken either the prescribed correspondence course or the special or regular course at a Special Service School, the Command and General Staff School or Army War College. A physical examination is required for officers of field grade. If the officer has not these requirements he may be re-commissioned in the Unassigned Section, with suitable notation as to branch in which he formerly held a commission.

Reserve Officers Training Corps. In 1927, 4917 Reserve Officers Training Corps graduates accepted appointments as Second Lieutenants in the Officers Reserve Corps. There were 5891 students altogether who graduated or over 98 per cent of acceptances of commissions.

New war strength tables for units of the infantry brigade have been issued. They were badly needed. The new tables show a return to the organization of the World War for machine gun companies, each having three platoons. Within the regiment there appears an elimination of ration and water carts with reduction of ammunition and ration allowances.

The War Department authorized not to exceed five graduates of the United States Military Academy and not to exceed five officers, non-graduates, to undertake a course of study at Oxford University in accordance with the provisions of Rhodes Scholarships which may be awarded them. Heretofore but one officer was authorized annually.

One would scarcely expect to hear that a supposedly obsolete form of case shot was about to be re-introduced by the U. S. Army for use with the Infantry tank. Such was the fact, for the Ordnance Department was experimenting with it. The development of special artillery for the use of tanks had become necessary. As is well known, the tank is primarily used for attack on machine gun nests and other tanks. The new canister was being developed for use against personnel at ranges from 25 to 100 yards, and is for use with infantry tanks carrying the 37-millimeter guns or one-pounders.

The 37-millimeter gun Model 1915 E. designed to replace the 37-millimeter gun hitherto in service, was adopted, as its ability to pierce armor plate, its rapidity and ease of traverse, make it more efficient than the old model.

Tanks. Fire Extinguisher Foamite 2½-gallon type for Mark VIII heavy tank will reduce materially the fire hazard of this type of tank and add to the safety of the tank crew. With the manufacture of a suitable sub-calibre for the six-pounder gun on the Mark VIII tank, target practice with this gun was possible and efficiency of the gunners maintained notwithstanding reduced appropriations.

The Chief of Infantry reported that the reduction in the amount of ammunition, rations and equipment formerly carried on the person had the effect of reducing the weight of the Infantry pack from 77 pounds to about 52 pounds. This reduction was accomplished by authorizing gas masks, steel helmets, overcoats, reserve rations and extra ammunition to be carried on the trains until entering combat areas.

It was interesting to note that 522 stallions were in service on June 30, 1927, divided into 461 thoroughbred sires, 30 Arabs, 27 Morgans, 1 standard bred, 2 saddle bred, and 1 hackney. It was apparent that the army horse breeding plan made it the greatest breeder of horses in the world.

On June 30, 1917 there were 12,010 Federally recognized officers in the National Guard, a gain of 737 during the twelve months. The turnover of Guard officers during this time was about 14 per cent. About 8000 officers were also members of the Reserve Corps, 1300 more than in the previous year holding two commissions.

The Joint Army and Navy Board with the approval of the Secretaries of War and Navy defined the relative functions of the Army, Navy and Marine Corps in matters of National Defense. The Board clearly defined the functions of the Air Corps and Naval Aviation in the matter of coast-line defenses. The primary responsibility for aërial protection of the coast-line remains with the navy. In emergencies special provision is made for coordination of the Army Air Corps and Naval Aviation and the use of one for the other. In reference to the point of former controversies regarding command of joint operations, the President may delegate his authority as commander in chief so far as such specific operations are concerned by the appointment of either an army or naval officer to exercise command. In the foreword to the publication in one volume, of all joint policies, agreements or instructions with a view to securing effective coördination, appears: "It is vital to success in war that the army and the navy so coördinate their actions as to produce the most effective mutual support. To accomplish this it is essential that both services have a common, definite understanding of their respective functions in national defense and of the approved methods for attaining 'coördination in operations.'" Part I relates to policies to govern joint army and navy actions. Part II, minor policies, agreements and joint instructions which by providing effective organizations and agencies for coördination, and by enumerating standard practice, promote harmonious joint action. The policies and procedure enunciated in the volume known as Joint Board Policies were published to the Services in August, 1927.

On June 10, 1927, the 75-millimeter mortar was accepted by the War Department as to type and approved as standard for manufacture. It is to replace the old unsatisfactory smooth-bore muzzle-loading 3-inch trench mortar used by the troops during the World War. According to the *Infantry Journal* of September 1927 the new mortar was entirely modern, rifled, breech loading, more powerful and more accurate and safe. Its adoption made an important step forward for the infantry. Its range is 1800 yards and rate of fire 15 shots per minute. It and its caisson can be pulled by one mule and are light enough to be carried forward by hand if animal transportation is not desirable due to terrain or hostile fire.

Aviation. Under conditions existing in 1927 only airplanes of the United States Army and

Navy were permitted to fly over the Canal Zone. In July 1913 President Wilson issued an order forbidding flying over the Zone without written authority of the governor. This order was still in effect. Under the new American-Panaman treaty all aircraft and aviation centres in the Republic of Panama were subject to inspection by United States authorities, and all aircraft other than those pertaining to the defensive forces of the Canal "must follow routes prescribed jointly by the United States and Panama. . . ." The Republic of Panama agreed not to permit flying in Panaman territory over areas near the defenses of the Canal, except in agreement with the United States, and in the enforcement of the rules and regulations regarding aircraft and aviation the deciding factor is the safety of the Panama Canal. In time of war or threatened hostilities complete control reverts to the United States under Article XI of the same treaty. Panama cannot give concessions for air bases except with consent of the United States.

This treaty had not been ratified up to the end of 1927. All this was interesting in view of the application of the Germans for a base to establish a commercial air route between Panama and the east coast of Colombia.

Despite the radio and telegraph, pigeons fill an essential rôle as message bearers. The United States Army had in 1927 more than 1500 birds within the limits of the country, in the Canal Zone, Hawaii and the Philippines. About 500 were stationed at the Signal School at Port Monmouth, New Jersey, where they are bred and trained.

Night flying of pigeons was the latest development in handling these birds. In Hawaii five army pigeons were trained to fly from any point in the Island of Oahu to their loft. In the Panama Canal Zone one loft has pigeons that can be liberated at any point on the Isthmus on the darkest night and find their way back as quickly as other birds do in daylight, according to the *New York Times* of Nov. 14, 1927.

AVIATION. On December 7 the U. S. War Department approved construction of an emergency landing field at Fort Tilden, New York, to cost $75,663. Fort Tilden is on the air route from Bolling Field, District of Columbia, and Mitchel Field, Long Island. The War Department also awarded contracts to the Atlantic Aircraft Corporation of New York for 8 model C-2A cargo planes and spare parts to cost $328,076.80. The unit cost of the planes is $35,125 and they are tri-motored monoplanes with capacity for 10 persons.

President Coolidge in his budget message to Congress stated: "In 1927 there was available for expenditure for defense purposes, excluding all non-military items and retired pay, $576,000,000. Army estimates contemplate a regular army of 118,750 men, with 12,000 officers, 30,000 trainers for Civilian Military Training Camps, 125,000 cadets in the Reserve Officers Training Camps, and a National Guard of 188,000 men. For housing purposes a total of $13,280,000. In addition, $10,440,000 for repairs and maintenance of barracks, quarters, sewers, roads and water systems. There is an increase of $2,000,000 for ammunition and estimates provide for second year increment in the five year programme looking toward 1800 airplanes at the end of five years."

During the year the Army Air Service had many notable achievements to its credit including the flight of Lieutenants Maitland and Hegenberger from Oakland, California, to Hawaii, and the good will flight around South America. The Hawaiian flight was over 2400 miles over water and made in the army transport C-2 in slightly more than 25 hours. (See AËRONAUTICS.) During the flood in the Mississippi Valley and the one in Vermont, army pilots performed invaluable service carrying messages, food and medicine to flood sufferers and performing such other duties as tended greatly to expedite relief measures which were instituted. The war time training plane was eliminated altogether and planes with metal fuselages were superseding those of wooden fuselage construction. On May 20–21 Captain Charles A. Lindbergh, alone, made his New York–Paris flight in the "Spirit of St. Louis"—3610 miles in 33 hours 30 minutes.

In the tests conducted by the Chemical Warfare Section in conjunction with the Air forces at France Field, Canal Zone, when ten airplanes simulated an attack on the locks at Pedro Miguel, which were concealed by a smoke screen of white phosphorus, the principal object sought was the protection of the control house gates, the most vital parts of the locks structure. The results were not available but the tests indicate what was being done by this branch of the Service there. Undoubtedly more extended tests will have to be held if anything definite is to be determined as to the value of these smoke screens.

According to the Chief of Chaplains in his annual report there were 28 denominations represented in the Chaplains Corps, providing "abundant variety" in religious expression. There were 21,208 religious services in the army during the fiscal year with an estimated attendance of 1,680,578, and in addition 581 army weddings, 1079 baptisms and 1283 funeral services.

Facts hitherto unrevealed but of interest to all military students were told by Newton D. Baker in his introduction to *The American Reinforcement in the World War* by Captain T. G. Frothingham, U. S. R., a naval expert who wrote three volumes of *Naval History of the World War*, says the *New York Times* of Nov. 15, 1927. The real purpose of the Balfour and Viviani Missions to the United States when the latter country entered the war was to get immediate financial assistance and they didn't expect the United States could send many soldiers to France. Joffre thought America might send 500,000 men! The idea of the draft law was credited to General Hugh L. Scott, Chief of Staff. This provided 2,000,000 before the Armistice. "Have the law drawn at once," President Wilson told the Secretary of War, "so that if I should be obliged to go to the Congress I can refer to it in my message as a law ready to be presented for their consideration." With this in mind he prevented the formation of volunteer units such as Roosevelt wanted to form. He selected General Pershing because of his robust health, energy, tact, and self-restraint and military ability shown in the punitive expedition into Mexico after the Villa border raids. Pershing never once was interfered with from Washington. The only limitation upon the complete authority given Pershing was that the identity of the American army in France must be preserved. This was settled before the first American went over.

Great Britain. Under date of Sept. 11, 1927, the New York *Herald-Tribune's* London Bureau announced drastic changes in British army administration following the development of mechanized forces. The War Office announcement indicated the addition of a new office of Deputy Master General of Ordnance who was to control practically the mechanized forces. He will be the fourth principal officer of the staff at General Headquarters. The new post was assigned to Lieutenant General Sir Webb Giliman, formerly inspector of Artillery. The Salisbury Plain maneuvers evidently convinced the Army Council that concentration of all mechanized forces, including lorries and six-wheeled automobiles as well as tanks and armored cars, was essential. The original estimate for airship development, including two giant dirigibles now being constructed, was £1,350,000, which was too little by £130,000. The cost of one ship, the R-101, was to be about £400,000.

Germany. A balance of $218,929,926.51 was due the United States from Germany, the War Department announced on December 6, for the cost of the American army of occupation. Payments under Article 3 of the Finance Ministers' Agreement of January 14, 1925, from Sept. 1, 1926, to Oct. 31, 1927, the end of the reparations year, were $13,057,939.47. Emil Ludwig in the *New York Times* wrote an illuminating article December 18. Among other things: "And the subject of sport subdues the German war spirit and shows that now that compulsory military service is gone the nation finds an outlet for its energies in outdoor life. Liberated suddenly from such service they have set themselves to creating a higher means of physical culture. The spirit underlying the new German movement in sports is not a desire for military prowess, but its opposite. The growing development of sports is driving away the warlike spirit instead of arousing it. The personal courage of Lindbergh was not surpassed by that of any solder in the war."

Under date of Sept. 6, 1927, Foreign Minister Stresemann of Germany was notified by the Acting President of the Allied Conference of Ambassadors, that the allied army of occupation would be reduced from 70,000 men to 60,000. This reduction would include a cut in the number of the High Command who are occupying buildings in various German cities needed for municipal governmental purposes.

Russia. According to foreign observers the militant temper of the proletariat dwelling in towns was most noticeable. An estimate that conscripts at the rate of a million a year receive military training gives Russia in the decade of Bolshevist rule 10,000,000 recruits! Figures were given for the Red army, without the mobile and uncounted forces of the political militia, O. G. P. U., as 770,000 troops. The campaign for an air fleet by making every town and trade-union responsible for one new plane has had an enormous success.

The *New York Times* of October 15 published the interesting news from Riga that the training of women in the various forms of military service was an object of special attention in connection with the feverish preparations for war being made in Russia. According to the Commissary of War Voroshiloff there were 72 commissioned women officers or commanders in the Red army. Eight women had passed through the General Staff Academy. During the Russian Civil War, 79 women fought beside the men and received the "Order of the Flag."

The annual Red army's grand maneuvers were held in September 1927 in the zone between the Black Sea's northeast coast and the main Transcaucasian Railroad from Moscow through Borlof to Baku. The experimental full mobilization of reservists was held in the Leningrad and Crimean military regions, possibly with the idea that these are the most vulnerable points from the standpoint of an attack by Great Britain.

According to dispatches in the *New York Times*, November 27, from Moscow, the Red army despite lack of information concerning it was not to be despised. Notwithstanding difficulty in getting information in Russia concerning it, there was certain information available. The Red army and fleet combined had a total of 526,000. The army was made up mostly of short-time conscripts serving from one to three and a half years, depending on the branch of service. It was organized along lines of the British territorials and the army of Switzerland. There was an additional force, said not to be counted in the army total, the so-called "Gaypayou" troops, which form the garrisons of the principal cities and guard railroads and frontier stations. Its estimated number is between 60,000 and 90,000 men enlisted for from five to seven years. In tanks and heavy artillery it is probably weak. In discipline, training, and spirit it is excellent.

France. Under the treaty of arbitration and friendship between France and Jugo-Slavia, they bind themselves not to go to war and to arbitrate all differences not adjusted by direct negotiations. In addition, they engage to act in concert in dealing with problems concerning the general situation established by treaties, except when the League of Nations intervenes by virtue of Article XI in case world peace is threatened. Just why Italy objected was not evident for she herself had similar treaties with almost all the Balkans and even with Jugo-Slavia. Perhaps it was the implied endorsement by France of Jugo-Slavia's anti-Italian attitude!

Early in the year Italy signed a treaty with Albania and gave Italy the right to intervene militarily if "their reciprocal interests" are threatened by a hostile power. The results of the Franco-Jugo-Slavia treaty were that France gets definite military alliances with Belgium, Poland, Czechoslovakia, Rumania, and Jugo-Slavia. They are called by France regional security compacts. Notwithstanding all the discussion of the whys and the wherefores of what caused these treaties, France does not fear an attack from Italy—considering it, no doubt, a geographical impossibility. The road to Paris was just as difficult as the road to Rome.

Disarmament in Europe was impossible as long as Russia remained outside. Besides, Germany had a military understanding with Russia.

The terms of the treaty referred to were (1) not to make war on each other, with the exception noted of their duties as members of the League of Nations; (2), to examine together all questions threatening their security or disturbing the status quo as fixed by peace treaties; (3) in case of attack against either of them the two nations pledge themselves to act conjointly to safeguard their interests; (4) ten year limit to the treaty.

The poilu's horizon blue was displaced by khaki. On November 11 the French troops wore that material en route to the Tomb of the Unknown Soldier.

CANADA. It is not generally known that Canada has a regular and permanent military force and that British troops are not stationed there. This permanent force is officially designated "Permanent Active Militia." "The Permanent Force" as it is generally known was fixed during the reorganization of 1923 at 3643 officers and men. The fortifications at Halifax and Esquimalt, arsenals, and military district headquarters, are garrisoned by this force. The Non-Permanent Militia, comparing with the U. S. National Guard, numbers 129,467. In addition to training and instructing these troops, the Permanent Force trains Cadet Corps and conducts their summer camps.

The Royal Canadian Regiment was increased after the war by two Infantry battalions—the Twenty-Second, a French Canadian unit, and Princess Patricia's Canadian Light Infantry. The cavalry consists of two regiments, the Royal Canadian Dragoons and Lord Strathcona's Horse, raised during the South African War. Three battalions of Royal Canadian Horse Artillery, five companies of Royal Canadian Garrison Artillery, two companies of Royal Canadian Engineers, with technical and administrative services, are included. The Royal Military College is at Kingston. Vacancies in the grade of first lieutenant are reserved for graduates of this school, with five specially selected for commission in the Imperial army. The course of instruction, like that at West Point, is four years. Most of its graduates retire to civil life and become officers in the Non-Permanent Militia. The enlistment period of such personnel is two years, with initial pay for the private soldier of $1.70 per day, with retirement at the end of ten years. The Force is under the direct control of the Minister of National Defense at Ottawa, responsible to the Parliament of Canada.

ITALY. The maneuvers of the Italian Air Force during September indicated a high degree of efficiency, carried out as they were on a scale exceeding anything undertaken in Europe. That there was marked success is shown by the fact that the 527 machines involved flew in the five days from September 15 to 20 approximately 19,700 miles without an accident of any kind. Flying was done at night as well as by day, with bombing attacks part of the programme. In 1922 Mussolini reorganized the air force and caused it to be run as a separate ministry. Within three years there were 1600 first line machines. Two years more saw an additional 1700 installed. The Italian estimates call for a force of 2800 military planes by the close of 1929. Recently the Assistant Secretary for Air, Balbo, informed the Deputies that Italy then had 2797 machines as follows: Bombers 865; chasers 1250; scouts 682. While commercial aviation is receiving much attention, Mussolini and his ministers have brought home to the nation the necessity for an air force second to none.

As a result of the recognition by the Italian army of the value of physical training after the World War, the Central School of Physical Education was established in 1922 at Farnesina just outside of Rome. The climate is such that outdoor instruction can be given practically throughout the year. Its primary mission is the athletic training of junior officers of the army, who upon completing the three months course are returned to their regiments as physical instructors of the enlisted men. A special nine months course was established for those officers who made the best record in the three months course. These officers were to direct physical training in regiments, recruiting schools for officers and noncommissioned officers and divisional centres of physical training. The results were so beneficial in the regular army that Mussolini decided to introduce it in the National Security Militia in 1925. These were three months' courses. It ought to be noted that this militia is charged with the pre-military training of Italian youth, which is mostly physical.

On February 22 Colonel Francisco de Pinedo began his flight from Rome to South America and completed a 25,000 mile four-continent flight at Ostia near Rome on June 16. (See AERONAUTICS.)

At Turin, December 23, Renato Donati broke the world's altitude record with 38,792 feet.

MILITARY TERRITORY OF THE NIGER. A territory under the governor general of French West Africa (q.v.). Capital, Zinder.

MILK. See DAIRYING; FOOD AND NUTRITION.

MILLER, CHARLES R. Former governor of Delaware, died at Pine Valley, N. J. September 18. He was born in Chester, Pa., Sept. 30, 1857. He was graduated from Swarthmore College in 1879 and afterwards studied law at the University of Pennsylvania. For many years he figured as officer or director in various industrial concerns. He was elected to the Delaware Senate in 1910 for a term of four years, but resigned in 1912 to accept the Republican nomination for governor. He served 1913–17.

MINERAL DEPOSITS. See GEOLOGY.

MINERALOGICAL CHEMISTRY. See CHEMISTRY.

MINERALOGY. The year 1927 witnessed the extension of knowledge regarding the mineral constituents of the earth, along several lines. Much research work was done in the relatively new branch of mineralogy that was concerned with the atomic structure of minerals, which was rapidly being advanced by the labors of crystallographers and physicists to the rank of a separate science. The year also was a productive one in the field of discovery of new minerals. These ranged in practical importance from a new borate, which was found in sufficient quantity to be of distinctly economic value, to a new arsenate of manganese and zinc, of which our knowledge is confined to a single specimen.

The mines of the New Jersey Zinc Company at Franklin, N. J., added three new mineral species to the long list of rare compounds occurring at this famous locality. *Holdenite,* the new arsenate of manganese and zinc, was discovered on a single specimen in the collection of the late A. F. Holden at Harvard University, and named in honor of him. It occurs in minute orthorhombic crystals of a clear pink to a deep and yellowish red color. *Cahnite,* a new boro-arsenate of calcium, in very small white transparent crystals of tetragonal-sphenoidal symmetry was named in honor of Lazard Cahn, a prominent collector and investigator of Franklin minerals. Another new Franklin mineral, whose name records a former local collector, is

McGovernite, named for J. J. McGovern. This is an arseno-silicate of manganese, magnesium and zinc, occurring in red-brown granular masses.

The Belgian Congo, which of late years has been a prolific source of new minerals, added two new species to its already long list. A hydrated uranium oxide from Katanga has been named *ianthinite* in recognition of its violet color. It is found in small black crystals of a violet tint and a semi-metallic luster. *Kipushite*, a new phosphate of copper and zinc, was found in dark blue monoclinic crystals at the Prince Leopold mine at Kipushi. From Tsumeb, in the Otavi district of S. W. Africa, came the new lead arsenate, *Schultenite*, named in honor of Baron A. de Schulten. The monoclinic crystal of this mineral, of which only two specimens are known, is clear, transparent and colorless. *Loparite*, a new titanate of rare earths of the perovskite group, occurring in small black cubic crystals, was found in Lapland.

From the confusing series of copper vanadates occurring at the Tange Gorge in Fergana, Turkestan, emerged the new mineral named *Tangeite*, a crystalline, dark olive green mineral. A new manganese silicate from the Val d'Err, Switzerland, was named *Sursassite*. It occurs in fibrous copper-red aggregates. Material recently collected from the crater of Vesuvius added two new mineral species; *avogadrite*, a yellow to reddish caesium and potassium fluoborate, and *mallardite*, a sodium fluosilicate in small hexagonal prisms.

A new sulph-antimonite of silver and bismuth from a silver mine at Chocaya, Potosi Department, Bolivia, was given the name of *aramayoite*, in recognition of Señor Don Felix Avelino Aramayo. The mineral has a brilliant metallic iron-black color and occurs in irregular cleavable aggregates. A new fava mineral of complex composition and containing yttrium and erbium was found in dark reddish gray pebbles on the upper Rio Doce, Minas Geraes, Brazil, and was named *eschwegeite*, in honor of Baron W. L. Eschwege. *Toddite*, a new uranium columbate from the Sudbury district, Ontario, occurs in small pitch-black rounded masses. It was named in honor of E. W. Todd of the Ontario Department of Mines. A new telluride of copper, named *weissite* in honor of Dr. Loui Weiss, owner of the mine in which it was found, occurs in bluish black metallic veins at Vulcan, Colorado, closely associated with other tellurides.

Kernite, a new sodium borate, from Kern County, California, has been found in large colorless, transparent, orthorhombic crystals, and white crystalline masses. See CHEMISTRY, under *Mineralogical Chemistry*.

MINERAL PRODUCTS OF THE UNITED STATES, 1925–26 [a]

Product *Metallic*	*1925* *Quantity*	*1925* *Value*	*1926* *Quantity*	*1926* *Value*
Aluminum ....pounds..	....	$36,430,000	....	$87,583,000
Antimonial lead [b] ....short tons (2,000 pounds)	19,667	3,785,547	22,524	3,916,714
Antimony [c] ....do....	2,624	918,400	2,693	856,400
Bauxite ....long tons (2,240 pounds)	316,540	1,988,250	392,250	2,415,200
Cadmium ....pounds..	502,824	276,553	810,428	429,527
Chromite ....long tons..	108	2,105	141	2,079
Copper,[d] sales value ....pounds..	1,674,869,886	237,832,000	1,739,622,094	248,547,000
Ferro-alloys ....long tons..	616,222	53,048,100	689,258	61,368,407
Gold [e] ....troy ounces..	2,411,987	49,860,200	2,335,042	48,269,600
Iron:				
Ore [f] ....long tons..	63,924,763	[f]160,796,886	69,292,832	[f]174,015,645
Pig ....do....	36,814,702	739,316,333	38,181,053	749,633,468
Lead (refined [d]) sales value ....short tons..	654,921	113,956,000	680,685	108,910,000
Manganese ore (35 per cent or more Mn) ....long tons..	98,324	1,857,769	46,258	1,228,663
Manganiferous ore (5 to 35 per cent Mn) [g] ....do....	1,448,054	3,752,486	1,235,431	3,138,489
Mercury:				
Metal ....flasks (75 pounds net)	9,174	762,616	7,642	702,323
Ore ....short tons..	65,000	(h)	51,000	(h)
Nickel (value at New York City) ....do....	272	169,664	306	223,598
Ores (crude), tailings, etc.:				
Copper ....do....	53,262,000	(h)	(i)	(h)
Copper-lead and copper-lead-zinc ....do....	229,000	(h)	(i)	(h)
Dry and siliceous (gold and silver) ....do....	8,995,000	(h)	(i)	(h)
Lead ....do....	8,560,000	(h)	(i)	(h)
Lead-zinc ....do....	17,741,000	(h)	(i)	(h)
Zinc ....do....	3,411,000	(h)	(i)	(h)
Platinum and allied metals (value at New York City) ....troy ounces..	49,643	5,661,809	84,981	9,210,669
Silver ....do....	66,155,424	45,911,864	62,718,746	39,136,497
Tin (metallic equivalent) ....short tons..	14	15,980	8	10,400
Titanium ore:				
Ilmenite ....do....	5,566	89,000	(j)	(j)
Rutile ....do....	46	11,000	(j)	(j)
Tungsten ore (60 per cent concentrates) ....do....	1,191	755,500	1,382	920,400
Uranium and vanadium ores ....do....	18,070	331,000	21,624	329,000
Zinc,[d] sales value ....do....	555,631	84,456,000	611,991	91,799,000
Total value of metallic products (approximate)	....	1,380,280,000	....	1,402,920,000

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[a] In this general statement certain of the figures represent shipments rather than quantity mined, and some of the figures for 1926 are estimates.

[b] From both domestic and foreign ores.

[c] Figures represent antimony content of antimonial lead. Value excluded from metallic total as the value of the antimony is included in the antimonial lead value. Value for antimony other than that in antimonial lead is included in metallic total; Bureau of Mines not at liberty to publish figures.

[d] Produced from domestic ores only.

[e] Value, $20.671834625323 an ounce.

[f] Value not included in total value.

[g] Including ore used for fluxing.

[h] Figures showing values not available.

[i] Figures for 1926 not yet available.

[j] Value included in total value of metallic products. Bureau of Mines not at liberty to publish figures.

MINERAL PRODUCTS OF THE UNITED STATES, 1925–26 [a]—*Continued*

Product	1925		1926	
Nonmetallic	*Quantity*	*Value*	*Quantity*	*Value*
Arsenious oxide ....short tons..	12,317	$1,199,247	11,805	$674,350
Asbestos ....do....	1,258	51,700	1,358	134,731
Asphalt:				
Native ....do....	584,850	4,148,400	715,180	4,484,960
Oil [f] ....do....	1,206,700	[f] 15,305,760	1,245,160	[f] 15,452,940
Barite (crude) ....do....	228,063	1,703,097	232,875	1,743,293
Borates (colemanite and naturally occurring borax) ....short tons..	113,700	3,085,660	115,970	3,128,110
Bromine ....pounds..	1,566,120	488,406	1,245,760	426,837
Calcium-magnesium chloride ....short tons .	67,870	1,386,639	82,340	1,710,405
Cement ....barrels (376 pounds net)	159,046,937	281,075,691	164,218,941	280,783,542
Clay:				
Products [k]	....	423,446,917	....	([k])
Raw [f] ....short tons..	4,030,420	[f] 12,736,632	3,851,995	[f] 13,540,416
Coal:				
Bituminous [l] ....do....	520,052,741	1,060,402,000	578,290,000	1,272,000,000
Pennsylvania anthracite ....long tons..	55,193,883	327,664,512	75,390,582	474,164,252
Coke [f] ....short tons..	51,266,943	[f] 262,559,137	55,863,000	([f] [i])
Diatomaceous (infusorial) earth and tripoli ....do....	102,418	1,357,167	106,242	1,482,383
Emery ....do....	769	5,907	886	3,641
Feldspar (crude) ....long tons..	185,706	1,315,654	209,989	1,607,401
Fluorspar ....short tons..	113,669	2,052,342	128,657	2,341,277
Fuller's earth ....do....	206,574	2,923,965	234,152	3,356,482
Garnet for abrasive purposes ....do ...	8,429	712,853	6,397	528,875
Gems and precious stones	....	([m])	....	([m])
Graphite:				
Amorphous ....short tons..	3,536	39,640	2,975	40,500
Crystalline ....pounds..	2,257,250	56,721	4,989,200	178,842
Grindstones and pulpstones ....short tons..	37,340	1,705,939	38,339	1,873,284
Gypsum ....do....	5,678,302	47,577,240	5,635,441	46,721,219
Lime ....do....	4,580,823	42,609,141	4,580,000	40,800,000
Magnesite (expressed as equivalent crude) ....do....	120,660	1,432,700	133,500	1,200,830
Mica:				
Scrap ....do....	9,695	173,537	7,667	131,128
Sheet ....pounds	1,793,865	321,962	2,135,351	393,873
Millstones	....	22,490	....	45,937
Mineral paints:				
Natural pigments [n] ....short tons..	([n])	([n])	([n])	([n])
Zinc and lead pigments [m] ....do....	199,190	28,310,631	184,289	25,896,269
Mineral waters ....gallons sold..	([m])	([m])	([m])	([m])
Natural gas ....M cubic feet..	188,571,000	265,271,000	1,320,000,000	294,000,000
Natural-gas gasoline ....gallons..	127,470,000	120,383,000	1,356,800,000	136,000,000
Oilstones, etc. ....short tons..	970	272,224	1,640	218,359
Peat ....do....	72,436	452,898	61,936	364,413
Petroleum ....barrels (42 gallons)	763,743,000	1,284,960,000	766,504,000	1,444,000,000
Phosphate rock ....long tons..	3,481,819	11,545,678	3,209,976	10,893,800
Potash (K_2O) ....short tons..	25,802	1,204,024	25,060	1,083,064
Pumice ....do....	40,380	179,020	53,887	208,504
Pyrites ....long tons..	170,081	650,448	166,559	616,668
Salt ....short tons..	7,397,500	26,162,361	7,371,600	25,055,012
Sand:				
Glass ....do....	2,334,921	3,836,085	2,000,000	3,200,000
Molding, building, etc., and gravel ....do....	169,666,552	103,706,038	166,000,000	103,300,000
Sand-lime brick [p] ....thousands..	315,595	3,780,639	330,586	3,981,492
Silica (quartz) ....short tons..	25,444	205,876	27,743	274,333
Slate ....do....	724,600	12,575,326	718,000	12,352,767
Stone ....do....	115,851,370	174,216,792	124,000,000	184,800,000
Sulphur ....long tons..	1,858,003	29,000,000	2,072,657	37,300,000
Sulphuric acid (60° Baumé) from copper and zinc smelters ....short tons..	1,006,915	7,512,568	1,068,449	8,274,435
Talc and soapstone [q] ....do....	182,256	2,011,793	181,568	2,110,994
Total value of nonmetallic products (approximate)	....	4,291,100,000	....	4,852,000,000
Summary				
Total value of metallic products	....	1,380,280,000	....	1,402,920,000
Total value of nonmetallic products (exclusive of mineral fuels)	....	1,231,800,000	....	1,231,800,000
Total value of mineral fuels	....	3,058,680,000	....	3,620,200,000
Total value of "unspecified" (metallic and nonmetallic) products (partly estimated) [r]	....	6,250,000	....	[r] 7,080,000
Grand total approximate value of mineral products	....	5,677,630,000	....	6,262,000,000

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[f] Value not included in total value.

[i] Figures for 1926 not yet available.

[k] Figures obtained through cooperation with Bureau of the Census. Figures for 1926 not yet available; estimate of value included in total value of nonmetallic products.

[l] Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.

[m] No canvass. Estimate of value included in total value of nonmetallic products.

[n] Canvass discontinued after 1915. Value of iron ore sold for paint included under last item ("Unspecified").

[o] Sublimed blue lead, sublimed white lead, leaded zinc oxide, and zinc oxide.

[p] Figures obtained through coöperation with Bureau of the Census.

[q] Figures represent talc only. Value of soapstone is included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.

[r] Includes for 1926 the value of bismuth, cadmium sulphide and other cadmium compounds, chats ($548,540), columbite ($650), flint lining for tube mills and pebbles for grinding ($85,146), fluorspar (optical), iron ore sold for magnets, iron ore sold for paint ($129,541), lithium minerals ($53,400), natural magnesium chloride ($701,580), natural magnesium sulphate ($339,220), calcareous marl ($146,094), greensand marl ($174,740), mineral soap, molybdenum, selenium ($438,132), silica sand and sandstone (finely ground) ($1,398,478), sodium salts (carbonate, bicarbonate, sulphate, and trona) from natural sources ($1,321,640), tellurium ($2,229), zircon ($180,880), and an estimate of the value of miscellaneous mineral products, statistics for which are not collected annually by the Bureau of Mines.

MINERAL PRODUCTION AND RESOURCES OF THE UNITED STATES. In 1926 the mineral industries were, as a whole, maintained at a higher level of productivity than during the previous year and the output of mineral products was estimated by the U. S. Bureau of Mines at $6,262,000,000, the next largest ever recorded, as 1920 had the record, being $6,981,340,000. Inasmuch as price levels had declined since that year, when they were at their peak, the real value for 1926 represented at least an appreciable, if not a substantial, increase over 1920. The 1926 production showed an increase of 10 per cent over 1925 and 18 per cent over 1924. In 1926 the total output of bituminous coal was closely approximate to the War record and exceeded the record made in 1923, a more normal year, while the anthracite production was maintained at a good rate after the strike settlement in February. A new record was made in the output of crude petroleum, while the aggregate value of the metals produced in the United States showed a small increase over 1925. Gold and silver showed notable decreases, but a large increase was shown for zinc; the domestic production of copper increased moderately, with larger imports of copper into the United States. In 1926 the production of steel was the largest ever recorded and the production of pig iron was but little less than in 1923, a record year. The output of iron ore was greater than in 1925 but still below the record in 1917. The accompanying statistical summary prepared by the U. S. Bureau of Mines indicates the mineral products of the United States in the years 1925 and 1926. As usual, detailed discussions of the various important minerals and their production, together with information available for 1927, are described in separate articles, such as gold, copper, silver, iron, etc. (See tables, pages 524 and 525.)

MINES, UNITED STATES BUREAU OF. This bureau of the Department of Commerce is divided into the Technological, Economic, Health, and Safety, and Administrative branches. During the fiscal year ended June 30, 1927, the Bureau was striving to bring about safer and more healthful working conditions in mines and quarries and was extending its safety activities to the winning of petroleum from underground. Thorough rock dusting as a means of preventing or limiting mine explosions was being further extended in bituminous coal mines, while a special investigation of the falls of roofs of mines was under way. The coal mining industry was found to be using an increasingly large proportion of "permissible" explosives and "permissible" mining machinery and equipment. The training of miners in first-aid and mine rescue work continued, bringing the total number trained by the Bureau of Mines to 206,425. Investigations were in progress to conserve the nation's mineral resources through the development and improvement of mining practices and lessening the cost of recovery researches, and investigations were in progress, such as the utilization of manganiferous iron ores in northern Minnesota, in the hope of increasing the production of manganese. The Bureau of Mines also was engaged in technical research on nonmetallic industries and its search for and development of potash deposits. (See POTASH.) Methods to increase the recovery of oil from oil sands were being studied. The Bureau also continued the study of increased efficiency in the use of fuels and continued the accumulation of statistics and other information related to the economic problems of the mineral industry.

MINIMUM WAGE. The record of the year indicated that for the time being American courts continued to regard unfavorably the enforcement of minimum wage legislation. The attitude adopted in the District of Columbia case (see previous YEAR BOOKS) still prevailed. During the year the U. S. Supreme Court declared unconstitutional the minimum wage law of Arkansas (Mr. Justice Brandeis dissenting). The Arkansas law, enacted in 1915, fixed a statutory minimum wage of $1.25 per day for experienced female workers and $1 per day for inexperienced workers. The Supreme Court quoted its decision in Adkins *v.* Children's Hospital, though in the case of the District of Columbia Congress had provided for a minimum wage commission. Canada's history was the reverse. In December, 1926, the appeal court of British Columbia affirmed the constitutionality of the male minimum wage act of the province.

MASSACHUSETTS. This State, because its minimum wage findings are not compulsory, remained practically the only one in the United States to act. Its commission was active during the year, and prepared schedules for a series of new industries. For January 1 it posted a minimum wage rate for women employed in jewelry and related industries; for March 1 it did similarly for women employed in the toys, games and sporting goods industry. The scheduled wages were based upon a carefully prepared weekly budget necessary for a self-supporting woman over 18 years. For those in the jewelry industries the minimum wage was fixed at $14.40; for those in the toys, games, etc. industry the minimum wage (and budget) was $13.50 weekly. The following are the items in the budget: board and lodging, $8; clothing, $3; laundry, 35 cents; church, 15 cents; self-improvement, 20 cents; vacation, 25 cents; recreation, 25 cents; reserve, 20 cents; Mutual Association dues, 10 cents; incidentals, 25 cents. During the year, the commission began the study of the following industries: Boot and shoe findings, and electrical machinery and supplies.

The Boston papers continued to coöperate with the commission by publishing the names of noncomplying employers, though they were not required by law to do so. During the early part of the year, the *Monthly Labor Review* reported, the names of 38 such employers were posted. The commission, in recounting the tale of its activities for the fiscal year ending Nov. 30, 1926, declared that it had secured the wage histories of 36,454 women in 1361 establishments under 15 decrees. In the cases of 94.6 per cent, the decrees had been complied with. The 1968 cases of noncompliance had been found in 328 plants. What moved the commission to undertake the issuance of a decree for the electrical machinery and supplies industry was the fact that a study revealed that 47.1 per cent of 2443 female employees received less than $15 weekly.

CALIFORNIA. An interesting series of rebuttals was presented by the Industrial Welfare Commission of California to the usual arguments against the minimum wage. In a report covering its activities during 1922–26, the commission showed that it has under its jurisdiction some 160,000 working women and children. (1) The commission denied that the minimum wage tends to become the maximum wage. For a group of industries the minimum wage fixed was $16. In 1920 of some 56,000 women, 46.4 per cent were getting $17 or more per week. In 1925, of 76,000 women, 63.2 per cent were getting $17 or more. (2) The commission denied that it was the tendency to drop apprentices who were about to reach the minimum wage, these to be replaced by other apprentices. In 1920, of 50,704 women on the pay rolls of certain industries 14.3 per cent were receiving less than $16 per week as learners. In 1925, of 68,228 women, 5.8 per cent were receiving less than $16. (3) The commission denied that infirm or substandard workers would displace normal workers. Substandard employees are licensed by the commission only after it had been ascertained that they are unable to earn a minimum wage. This group, also, has not increased. At the end of 1925 there were only 335 licenses for substandard workers in the industries under inspection. (4) The commission denied that the legislation was injurious to the more skilled workers who would be made to equalize the wages of their less competent fellow-employees. The commission showed that in 1919, when the wage minimum was $10, only 446 women were receiving $30 a week or more; in 1925, with a $16 minimum, 6084 women in the same industries were receiving $30 weekly or more.

MINING AND METALLURGICAL ENGINEERS, American Institute of. An organization founded in 1871 and incorporated under the laws of New York State in 1905, "to promote the arts and sciences connected with the economic production of the useful minerals and metals and the welfare of those employed in these industries." It is made up of 28 local sections and has 40 affiliated societies at colleges throughout the country. There are four classes of membership: members, men who have been practicing engineers for at least six years; associates, men interested in or connected with mining, geology, metallurgy, or chemistry, but not practicing engineers; junior associates, students in engineering schools; and honorary members, those elected by unanimous vote of the Board of Directors. On Jan. 1, 1927, there were 8560 members, distributed as follows: honorary, 17; members, 6528; associates, 884; junior associates, 1131. The income for 1926 was $201,359. In addition to the monthly meetings of the local sections, the annual meeting, a four-day convention, is held on the third Tuesday in February, in New York City, and regional meetings are held in various important mining or metallurgical centres in the United States or abroad. The Institute publishes *Transactions*, an annual containing the best papers of the year on mining and metallurgical subjects; *Mining and Metallurgy*, a monthly bulletin; the *Year Book* which constitutes a "Who's Who" in the profession: *Technical Publications*, a series of individual technical pamphlets; and special volumes from time to time. In connection with three other societies the Institute maintains the Engineering Societies Library and an employment bureau. The headquarters are at the Engineering Societies Building, 29 West 39th St., New York.

MINNEAPOLIS. See City Planning.

MINNESOTA. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,387,125. The estimated population on July 1, 1927, was 2,268,000. The capital is St. Paul.

Agriculture. The following table gives the acreage, production, and value of the principal crops, in 1925 and 1926:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	4,172,000	127,246,000	$81,437,000
	1926	4,343,000	147,662,000	82,691,000
Oats	1927	4,496,000	120,493,000	48,197,000
	1926	4,532,000	129,162,000	43,915,000
Hay	1927	4,264,000	7,644,000[a]	60,883,000
	1926	4,132,000	4,469,000[a]	58,237,000
Wheat spring	1927	1,653,000	18,080,000	19,888,000
	1926	1,783,000	22,256,000	27,375,000
Wheat, winter	1927	155,000	3,317,000	3,616,000
	1926	146,000	2,555,000	3,066,000
Barley	1927	1,503,000	45,090,000	29,808,000
	1926	1,307,000	32,625,000	16,664,000
Rye	1927	409,000	7,485,000	6,862,000
	1926	440,000	5,940,000	4,514,000
Flaxseed	1927	757,000	7,343,000	14,099,000
	1926	814,000	7,652,000	15,074,000
Potatoes	1927	328,000	33,128,000	19,877,000
	1926	298,000	29,800,000	34,270,000

[a] tons.

Mineral Production. The mining of iron ore, supplying the bulk of the State's mineral production, was active in 1926, attaining a total quantity of 40,961,361 long tons in 1926, as indicated by shipments; in 1925, production was 38,022,237 tons. The value of ore shipped in 1926 was $103,715,621 and of that shipped in 1925, $96,083,485. Coke production held second place in importance. By-product coke ovens produced in 1926, 619,905 short tons of coke, and in 1925, 518,355 tons; in value, $6,014,738 for 1926 and for 1925, $4,992,024. Stone, sand and gravel, manganiferous ore and cement were produced in material quantities. The total value of the State's mineral products, duplications eliminated, was $110,252,956 in 1925 and in 1924, $107,884,680.

Finance. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of general departments of the State government in the fiscal year ending June 30, 1926, were $32,464,421; their rate per capita was $12.34. They included $9,754,561 apportioned for education. Totals not included in the above, of $4,184,872 in interest and $13,064,858 in permanent improvement outlays, brought the aggregate of State expenditure to $49,714,151. Of this, $15,610,877 was for highways; $4,421,969 being for maintenance and $11,188,908 for construction.

Revenue receipts were $57,248,433; or per capita, $21.76. Of their total, property and special taxes yielded 23.2 per cent, attaining a rate of $5.05 per capita. Earnings of departments and compensation for services of officials supplied 9.2 per cent of revenue; 50 per cent was derived from the sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a sales tax on gasoline.

Net State indebtedness on June, 30, 1926, save for county reimbursement road bonds obligating the State, was $12,227,564, or $4.65 per capita. Property subject to ad valorem taxation bore a valuation of $2,365,980,294. State taxes levied were $15,245,760, or $5.79 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 8,789.98. New construction in 1927, as reported by the *Railway Age* was 38 miles of first track.

Education. The Legislature, according to Commissioner of Education McConnell in the *Journal* of the National Education Association, increased by about $1,500,000 the previous total of State appropriation for the elementary and high schools. Effort was exerted toward the amendment of the existing teachers' retirement fund law, which the teachers had found unsatisfactory. A teachers' tenure law affecting only cities of the first class was enacted. Minneapolis was named as the scene of the 1928 convention of the National Education Association. The number of pupils enrolled in the public schools of Minnesota in 1927 was 550,330. Of these, 464,461 were in the common schools and 85,869 in high schools. Expenditure on public school education in the State in 1927 attained $54,264,674. Teachers to the total number of 22,099 received in salaries $27,698,732, or an average of $1253.

Charities and Corrections. The State Board of Control, as functioning in 1927, exercised general control over 18 State hospitals, asylums, special and reformatory schools, sanatoria and penal institutions. It also supervised 14 county tuberculosis sanatoria, acted as a parole board for the inmates of reformatory schools, collected maintenance for the insane, inspected jails and poorhouses and appointed county child welfare boards. Institutions in its charge, with their immate populations on Dec. 1, 1927, were: Anoka State Asylum, 1021; Hastings State Asylum, 987; Willmar State Asylum, 727; Fergus Falls State Hospital, 1654; Rochester State Hospital, 1429; St. Peter State Hospital, 1598; School for the Feeble-minded, Faribault, 1,908; Colony for Epileptics, Cambridge, 171; School for the Blind, 82; School for the Deaf, Fairbault, 267; State Public School, Owatonna, 401; State Training School for Boys, Red Wing, 283; Home School for Girls, Sauk Center, 261; State Reformatory for Women, 94; State Reformatory, St. Cloud, 843; State Prison, Stillwater, 1254; Sanatorium for Consumptives, 251; Hospital for Crippled Children, St. Paul, 214. Prisoners received in the three penal institutions of the State in 1926, as reported by the U. S. Department of Commerce, numbered 822.

Legislation. The forty-fifth Legislature convened January 4 and adjourned April 21. It passed a law restricting the issue of bonds by municipalities, by setting limits to the amount of indebtedness and by requiring that bonds be issued to mature serially in not more than three years from date of issue. Pursuant to a constitutional amendment previously voted in the State, to enable the State to undertake a reforestation programme, the Legislature enacted laws to promote reforestation. Bills of this group provided for the creation of commissions of investigation and survey, the setting aside of an 80,000 acre tract for a State forest, permission to owners of land to have it qualified with the authorities as forest land, on meeting the requisite conditions, and thus to be released from the liability to all assessment for State taxation, save a small fire assessment, until the payment of a final tax of 8 per cent on the forest crop. Legislature with regard to crime gave occasion to much dispute, particularly in the State Senate. The report of the State crime commission, based on a year of study, recommended the establishment of a central State organization of criminal law enforcement, a stiffening of criminal procedure and penalties with particular reference to recidivists, and the reorganization of the parole system. Finally, meeting these recommendations in part, the Legislature provided a State bureau of criminal investigation and records with 12 investigators; a modification of the Baumes system of penalties of New York State, setting increased penalties for repeating offenders, and modifications of detail in the parole law, without change in the organization of the board.

A mass of banking legislation was enacted, with the purpose of preventing the recurrence of experiences of the two adverse banking years preceding. A State bank guaranty law was proposed but not adopted. Bills were passed to strengthen the bank examiner's department, to restrict banks' lending power and to fix responsibility more definitely on bank officials. A measure known as the Basic Science bill was enacted to limit the ability of members of certain groups to practice medicine. It required that osteopaths and chiropractors, in particular, before being licensed to practice, must pass a State examination to determine their proficiency in basic scientific knowledge of such extent as would be attained by a two-year course of study in an institution of learning. The measure provided that one osteopath and one chiropractor should be on the examining board. A State Senate committee investigated the expenses of the 1924 campaign of Thomas D. Schall which resulted in his election to the U. S. Senate. There was enacted a teachers' tenure bill forbidding the discharge of teachers without a hearing, after they had served for a probationary period, during which summary discharge was to be permitted. See Women in Industry.

Political and Other Events. The first life sentence under the habitual criminal act of 1927 was imposed October 20. The Governor's veto of a pay increase for district judges was contested at law as having been delayed beyond the legal three-day period, but was declared legal May 25 by Judge Stanton of the District court at Bemidji. Suits to contest the power of the Department of Administration and Finance to regulate expenditure were brought by the regents of the State University and by the Livestock Board, in September. By order of the State Senate the Attorney General undertook April 6 an investigation of the conduct of the State Securities Commission under the former commissioner, Andrew E. Nelson, with special reference to authorization of the sale of notes issued by interests controlled by the promoter Cochran. The Conservation Commission began in September a land classification survey of the State's timber area, in connection with reforestation legislation.

In St. Paul, business interests brought forward March 20 a project for a $2,500,000 river terminal to occupy 1000 acres in the Riverview district. The Governor's Metropolitan Drainage Commission started October 8 a two-years' study of plans for the drainage of the St. Paul-Minneapolis area and the disposal of sewage by tunnel or by a disposal plant so as to stop the pollution of the Mississippi River. At Minneapolis a Fridley filtration plant was put into service in the course of the year, to supply an added 45,000,000 gallons a day of potable water.

The United States Supreme Court confirmed a State Supreme Court decision upholding the

Minneapolis zoning regulations against an owner unable to obtain building permits for an apartment house. The new Minneapolis municipal auditorium, completed at a cost of some $3,000,000, was opened June 11. An ordinance was drawn by the city authorities for the paving and widening of a system of arterial streets at the rate of $200,000 a year. Several large business buildings were undertaken in Minneapolis, including the Foshay Building, 28 stories; Medical Arts Building, 22 stories; and an 18 story addition to the Yeates building. The Cream of Wheat Company started construction of a $1,000,000 addition to its plant at the Northwest Terminal.

OFFICERS. Governor, Theodore Christianson; Lieutenant Governor, W. I. Nolan; Secretary of State, Mike Holm; State Treasurer, Julius A. Schmahl; Auditor, Ray P. Chase; Attorney General, Albert F. Pratt; Commissioner of Education, James M. McConnell.

JUDICIARY. Supreme Court: Chief Justice, Samuel B. Wilson; Associate Justices: Homer B. Dibell, Andrew Holt, Clifford L. Hilton, Royal A. Stone.

MINNESOTA, UNIVERSITY OF. A State institution of higher education at Minneapolis, Minn.; founded in 1851. The 1927 autumn enrollment was 11,391, and there were 5444 registered for the summer session. There were 600 members on the faculty, including professors, associate professors, assistant professors and instructors on full time basis. The endowment of the University amounted to $8,666,152, including a permanent fund of $3,678,166.64, and lands and buildings in trust $1,590,837.55; the income from these funds together with that of service enterprises and revolving funds and intercollegiate athletics amounted to $2,232,960.26, State appropriations for maintenance, building and special purposes for 1926–27 were $4,490,085.87, and Federal aid, $281,456.50. The library contained 522,000 volumes. A gift of $305,000 was received from William H. Eustis and other gifts totaled $21,450. The following buildings were under construction: Botany building, at a cost for the year of $200,000; physics building, at a cost of $431,881; new law building at a cost of $250,000; new plant industry building at a cost of $250,000; and a field house for athletics at a cost of $650,000. Construction was to begin on a Memorial Auditorium to cost $1,000,000, of which $750,000 was available, and on a medical school and hospital to cost $890,500. President of the university, Lotus D. Coffman, Ph.D., LL.D.

MINOTTO, COUNTESS AGNES. A German actress, died at Crown King, Ariz., February 10. She was born in Breslau, Germany, in 1864, and had lived in the United States since 1916. She first appeared at Breslau in children's rôles at the age of 14. In her stage career she used the name of Agnes Sorma, and though she made several tours of America she was best known in Europe. In her early appearances in the United States she met with great success in Hauptmann's *Die Versunkene Glocke* and as Nora in Ibsen's *Doll's House.*

MISSISSIPPI. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,790,618. Owing to a decrease between 1910 and 1920 no later estimates have been made. Capital, Jackson.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	3,338,000	1,340,000[a]	$137,350,000
	1926	3,752,000	1,888,000[a]	109,504,000
Corn	1927	1,918,000	34,140,000	31,750,000
	1926	1,918,000	36,826,000	30,197,000
Hay	1927	526,000	631,000[b]	9,328,000
	1926	441,000	516,000[b]	8,140,000
Potatoes	1927	12,000	936,000	1,584,000
	1926	12,000	852,000	1,534,000
Sweet potatoes	1927	69,000	7,728,000	6,182,000
	1926	55,000	5,720,000	5,434,000
Oats	1927	48,000	912,000	638,000
	1926	41,000	902,000	595,000

[a] bales, [b] tons.

MINERAL PRODUCTION. The total value of the State's mineral production in 1925 was $2,171,945; in 1924, $2,090,422. Clay products, constituting about half this total, were valued at $1,050,241 for 1925 and for 1924 at $955,328.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $12,018,939; their rate per capita was $6.71. They included $3,940,925 apportioned for education. Totals not included in the above, of $814,597 in interest and $2,997,022 in permanent improvement outlays, brought the aggregate of State expenditure to $15,830,558. Of this, $4,492,182 was for highways; $1,734,004 being for maintenance and $2,758,178 for construction.

Revenue receipts were $17,076,372; or per capita, $9.54. Of their total, property and special taxes yielded 47.6 per cent, attaining a rate of $4.54 per capita. Earnings of departments and compensation paid the State for officials' services supplied 7.2 per cent of revenue; 22.6 per cent was derived from the sale of licenses, chiefly on incorporated companies and on motor vehicles, and from the privilege and gasoline taxes.

Net State indebtedness on Sept. 30, 1926, was $16,566,180, or $8.25 per capita. Property subject to ad valorem taxation bore a valuation of $751,144,403. State taxes levied were $4,506,866, or $2.52 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 4,168.86. New construction in 1927, as reported by the *Railway Age,* was 105.13 miles of first track.

EDUCATION. The spring floods imposed the difficult task of restoring educational facilities in the areas that had been afflicted. Several agencies lent aid for this purpose; benevolent foundations contributed, funds were raised among the school children of several States, and the State equalization fund was employed for school maintenance in the autumn session.

CHARITIES AND CORRECTIONS. The State government has no single unified branch for welfare administration. The chief charitable institutions of Mississippi are Belvoir Soldiers' Home, Gulfport; State Insane Hospital, Jackson; East Mississippi Insane Hospital, Meridian; State Charity Hospital, Jackson; South Mississippi Charity Hospital, Laurel; Vicksburg Charity Hospital; State Charity Hospital, Natchez; institutes for the blind and for the deaf and dumb, Jackson; Industrial Institute and Training School, Columbia; Colony for the

Feeble-minded, Ellisville. The number of inmates in the State prison on Jan. 1, 1927, was reported by the U. S. Department of Commerce as 1564, the number of admittances in 1926 at 649; the number of patients in State hospitals for mental disease, Jan. 1, 1927, as 2855.

Political and Other Events. Former Gov. Theodore G. Bilbo defeated Gov. Dennis Murphree for the Democratic nomination for Governor in the August primary and was elected with 16 other State candidates on the Democratic ticket November 8. Governor Whitfield died March 18 while in office, and was succeeded by Murphree, the Lieutenant Governor. Soon after his accession the Mississippi River floods overwhelmed a wide area of bottom land in the State. Governor Murphree issued an appeal for aid and the services of the American Legion and of the Mississippi National Guard were enlisted. Gulf Coast interests sent to the State three trainloads of boats, which were employed in transporting thousands of marooned inhabitants from the submerged area to safety. The neighborhood of Greenville was that most severely afflicted. From that district some 13,000 persons were reported to have been removed up to April 23. Secretary of State Wood reported early in the year that Mississippi charters had been issued to foreign corporations with a total capital of $219,807,400 in 1926, and of $67,920,900 in the first two months of 1927. According to the Mississippi River Flood Control Association damage done in the State by the 1927 spring floods amounted to $45,931,924. See Women in Industry.

Officers. Governor, Dennis Murphree; Lieutenant Governor, M. P. L. Love; Secretary of State, Walker Wood; State Treasurer, Ben S. Lowry; Auditor, George D. Riley; Attorney General, Rush H. Knox; Superintendent of Education, W. F. Bond.

Judiciary. Supreme Court: Chief Justice, Sydney Smith; Associate Justices: W. D. Anderson, James G. McGowan, George Ethridge, J. B. Holden, and W. H. Cook.

MISSISSIPPI, University of. A State institution of higher education at University, Miss.; founded in 1848. The total enrollment for the autumn of 1927 was 1072. The University consisted of the following colleges and schools: college of liberal arts, school of law, school of engineering, school of medicine, school of pharmacy, school of commerce and business administration. There was also a school of education, the students of which, however, counted their education courses toward a degree in one of the other schools. The summer school enrollment was 240. The faculty numbered 52, not including three instructors, three assistants, five teaching fellows and 35 student assistants. There were approximately 40,000 volumes in the library. The productive funds amounted to approximately $170,500, derived from legislative appropriation and from $42,000 interest on the $700,000 University funds in the State Treasury, while the student fees for the year amounted to over $60,000. A new chapel for which the legislature in 1926 had appropriated an extra $150,000 was completed and in use. Chancellor, Alfred Hume, C. E., D.Sc.

MISSISSIPPI FLOOD. See Agricultural Extension; Agriculture; Floods; Forestry; Red Cross, American; and under United States.

MISSOURI. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 3,404,055. The estimated population on July 1, 1927, was 3,510,000. The capital is Jefferson City.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	5,953.000	172,637,000	$129,478,000
	1926	6,471,000	176,011,000	119,687,000
Hay	1927	3,683,000	5,361,000[a]	52,441,000
	1926	3,277,000	3,648,000[a]	48,838,000
Wheat, winter	1927	1,558,000	15,580,000	19,008,000
	1926	1,391,000	21,282,000	26,390,000
Wheat, spring	1927	10,000	120,000	138,000
	1926	12,000	192,000	240,000
Oats	1927	1,630,000	27,710,000	13,024,000
	1926	2,173,000	43,460,000	18,253,000
Cotton	1927	281,000	104,000[b]	10,660,000
	1926	434,000	218,000[b]	10,900,000
Potatoes	1927	85,000	7,055,000	8,113,000
	1926	81,000	6,480,000	11,016,000
Sweet potatoes	1927	12,000	1,344,000	1,613,000
	1926	10,000	1,120,000	1,456,000

[a] tons, [b] bales.

Mineral Production. Missouri held first rank among the States as a lead producer in 1925, and in 1926 approximately maintained its lead production. (See Lead.) There were mined in the State in 1926, 207,012 short tons of lead, as compared with 211,566 tons in 1925; in value $33,121,920 in 1926 and in 1925, $36,812,484. Cement production was 7,653,111 barrels in 1926; in 1925, 8,331,751 barrels. In value, cement shipments were $12,917,342 in 1926 and in 1925, $14,155,795. Of coal there were mined 3,008,495 net tons in 1926; in 1925, 2,694,215 tons. The product for 1926 had a value of $8,951,000; for 1925, of $8,281,000. Clay products in 1925, the latest reported year, had a total value of $17,521,866, and in 1924 of $16,388,161. Zinc was mined to the extent of 26,018 short tons in 1926, and of 14,794 tons in 1925; in value, $3,902,700 in 1926 and in 1925, $2,248,688. Lime production, as estimated by shipments of producers, was 253,000 short tons in 1926; in 1925, 273,348 tons. In value it was $2,188,000 in 1926 and in 1925, $2,610,954. Stone, sand and gravel, and native asphalt were produced in important quantities. The total value of the State's mineral production, duplications eliminated, was $92,548,473 in 1925; in 1924, $81,054,122.

Finance. As reported by the United States Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Dec. 31, 1926, were $24,141,683; their rate per capita was $6.90. They included $5,981,647 apportioned for education. Totals not included in the above, of $3,006,328 in interest and $24,700,702 in permanent improvement outlays, brought the aggregate of State expenditure to $51,848,713. Of this, $26,409,585 was for highways; $2,657,980 being for maintenance and $23,751,605 for construction.

Revenue receipts were $42,049,767; or per capita, $12.03. Of their total, property and special taxes yielded 31.6 per cent, attaining a rate of $3.80 per capita. Earnings of departments and compensation paid the State for officials' services supplied 15.7 per cent of revenue; 39.6 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on Dec. 31, 1926, was $68,006,102, or $19.44 per capita. Property subject to ad valorem taxation bore a valuation of $4,846,684,834. State taxes levied were $5,816,022, or $1.66 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 8,021.94. There were built in 1927, as reported by the *Railway Age*, 20.01 miles of second track.

Education. A group of educational experts composed a new course of elementary study for the public schools of the State. The commission that performed this work, according to State Superintendent Lee, writing in the *Journal* of the National Education Association, consisted of four members of the State department, 25 graduate students of elementary education and, as directing head, Prof. Claude A. Phillips of the University of Missouri.

Charities and Corrections. The institutions of the State include four State hospitals, the Missouri Colony for the Feeble-minded and Epileptic, Missouri State Sanitarium, Confederate Home, State Federal Soldiers' Home, Missouri State Penitentiary, Missouri Reformatory, Industrial Home for Girls, Industrial Home for Negro Girls. Patients in State hospitals for mental disease on Jan. 1, 1927, numbered 5706, according to statistics furnished by the Department of Commerce; inmates of State prisons and reformatories on that date numbered 3442.

Legislation. The Legislature convened in regular biennial session January 5. It passed appropriations aggregating some $18,152,330 for the conduct of the State government over the period of two years, materially exceeding the anticipated revenue for the period. Measures were enacted to render more liberal the incorporation laws; under these measures companies might incorporate with stock in excess of the previous maximum of $50,000,000; might obtain perpetual charters; hold directors' meetings outside the State; and organize as holding companies. Another law enacted removed the minimum limit of 50,000 population from the restrictions to the permission to cities to establish zoning regulations by local ordinances, and made the permission apply to all cities, towns and villages. Two State departments were consolidated into a single State Department of Labor and Industrial Inspection. Laws affecting penalties for crime were modified in two important respects, by providing the segregation of criminals between 17 and 25 from mature lawbreakers, the two groups to be confined in separate institutions, and by providing death by the electric chair in the State penitentiary at Jefferson City as the method of inflicting capital punishment.

For the support of public schools were assigned by law one-third of the State revenues for the ensuing two-year period. Motor bus lines in interurban service were rendered subject to regulation by the State Public Service Commission. With the purpose of checking the so-called "diploma mill" abuse, the Legislature enacted a measure requiring medical colleges to give diplomas only to students who had complied with statutory requirements as to attendance. Laws governing the examination of nurses were amended so as to permit the licensing of obstetrical nurses. A State Board of Chiropractic Examiners was created, through which licensed chiropractors might obtain certified professional standing. A law against "loan sharks," similar to those existing in 23 other States, was passed; it placed under regulation concerns making loans of $300 and less, required them to make deposit to guarantee observance of regulations, limited interest on their loans to 3½ per cent a month, required that borrowers be furnished with clear statements of amounts owed on balance, and limited assignments on the part of the borrower to 10 per cent of his pay.

Laws to strengthen the system of State banks provided an increase of the capital required for banks of the least size, added new restrictions to the lending of banks' money, required larger minimum reserve funds and empowered the Finance Commissioner to refuse charters to applicants in cases where in his judgment the intended bank had better not be established. Certain of the expenditures of the city of St. Louis with regard to its police force were rendered no longer mandatory by State statute. The sale of game fish was prohibited. The teaching of the Federal and State constitutions in the schools of the State was required. Boxing bouts were legalized, under the supervision of a State Boxing Commission created for the purpose, and with the proviso that the bouts should be limited to 10 rounds and that there should be no official decision as to the victor. A child labor law to regulate the working conditions for children and to limit work to children of a certain age was defeated.

Political and Other Events. St. Louis was in part devastated by a tornado September 29. First striking at Manchester and Taylor Avenues, the disturbance swept over a wide area between Kings Highway, Prairie Avenue, and Glasgow Avenue. Its force was felt over some six square miles. Property damage estimated at $25,000,000, and according to some sources much higher, was done, chiefly in the wrecking of some 5000 houses, many of which were completely demolished. Approximately 100 lives were lost, including those of persons injured who died later in the hospitals. The storm swept a residential district, containing many houses of more than average cost. The Red Cross organization listed about 8000 families as having suffered by the disaster, and estimated 60 per cent as requiring aid. The number of injured approached 1000. The Governor employed State facilities for aid, but no special fund had to be raised for relief work, outside of money contributed within the city itself.

Bills providing for the southern approach to the projected municipal bridge across the Mississippi River were passed by the city Board of Aldermen June 24, and the assent of the Missouri Pacific Railroad to a necessary encroachment on its property removed the chief obstacle to the $1,500,000 project. Following the previous year's municipal advertising campaign, it was estimated in April that 41 industrial enterprises had come to St. Louis within a year.

A contest at law against the State tax on the capital, surplus, and undivided profits of National banks, imposed by a law of 1923, was carried to the United States Supreme Court, which in January affirmed the constitutionality of the tax, and in April denied a review. The State Supreme Court in a decision of October

10, asserted free comment and criticism of public policy and officials justified, and denied a sheriff a judgment for libel against an editor, because of an account of bootleg liquor drunk at a revival. The Attorney General brought divers suits in the effort to put an end to betting under the certificate form at the four dog race tracks in the State, which had attained large proportions. The Kansas City Joint Stock Land Bank, with headquarters in the State, went on May 4 into the hands of a receiver appointed by the Federal Farm Loan Board.

Portions of Missouri suffered greatly in the Mississippi Valley floods during the spring. New Madrid was overflowed and evacuated by the inhabitants April 20, and scores of towns and villages suffered in like manner. A tornado partly destroyed Poplar Bluff May 9, doing about $3,000,000 damage.

OFFICERS. Governor, Sam A. Baker; Lieutenant Governor, Phil A. Bennett; Secretary of State, Charles U. Becker; Auditor, L. D. Thompson; Treasurer, C. Eugene Stephens; Attorney General, North T. Gentry: Superintendent of Public Schools, Charles A. Lee.

JUDICIARY. Supreme Court: Chief Justice, Robert F. Walker; Associate Judges: Walter W. Graves. William T. Ragland, John Turner White, Frank E. Atwood, and David E. Blair.

MISSOURI, UNIVERSITY OF. A State institution of higher education at Columbia and Rolla, Mo.; founded in 1830. The enrollment for the first semester of 1927–28 at Columbia and Rolla was 4467, of whom 3150 were men and 1317 were women. This enrollment was distributed as follows: agriculture, 266; arts and science, 1872; business and public administration, 193; education, 371; engineering, 454; mines, 467; fine arts, 127: graduate, 278; journalism, 298; law, 144; medicine, 75; short course in agriculture, 48. The total enrollment for the 1927 summer session was 2052, of whom 868 were men and 1184 women. The total annual enrollment of all classes of students, including correspondence and extension classes, was more than 9000. There were 400 members on the faculty. The endowment of the University was approximately $2,500,000, and the total income from all sources a little over $3,500,000. The libraries of the institution contained approximately 326,000 volumes. President, Stratton Duluth Brooks, LL.D.

MITCHELL, EDWARD PAGE. American newspaper editor, died at New London, Conn., January 22. He was born at Bath. Me., on Mar. 24, 1852, and in 1871 was graduated at Bowdoin College, which conferred on him the honorary degree of Litt.D in 1907. He commenced his journalistic career on the staff of the Boston *Advertiser* in 1871, and in 1875 joined the editorial staff of the New York *Sun* and became the editor in 1911. In 1909–11 he was president and after that vice president of the Sun Printing and Publishing Company. In 1913 he was special lecturer at the Columbia School of Journalism. His writings on the editorial page of the *Sun* attracted nation wide attention for their brilliancy. He wrote *Memoirs of an Editor* (1924), and contributed stories to magazines.

MITCHELL, JOHN J. An American banker, died in Chicago, Ill., October 28. He was born at Alton, Ill., on Nov. 3, 1853, and was educated at Kent's Hill, Me. He entered the employment of the Illinois Trust and Savings Bank as messenger in 1873 and in a few years rose to a high place in the counsels of the bank, becoming president in 1880. In 20 years the deposits of this bank grew from $1,000,000 to $69,000,000. He retired in 1919, but a few years later when a merger had made the newly named Illinois Merchants' Trust Company the second in ranking in Illinois, Mr. Mitchell was persuaded to come out of retirement to become president.

MITTAG-LEFFLER, MAGNUA OLOF. A Swedish mathematician, died at Djursholm, Sweden, on July 12. He was born in Stockholm in 1846. He studied mathematics at Upsala and later in Paris under Weirstrass and in Berlin. He began his teachings as docent at Upsala in 1872, obtained a doctorate there, and in 1877 became professor of mathematics at Helsingfors. From 1881 until 1911 he was professor of mathematics at the University of Stockholm. He was a member of the Royal Society of London, the Académie des Sciences of Paris, and many other learned societies. He founded and edited the *Acta Mathematica*, a journal of international reputation. His library contained one of the most valuable and extensive collections of works on mathematics in existence. In his will he left funds to found an international mathematical institution.

MOLLENHAUER, EMIL. American conductor, died at Boston, December 10. He was born at Brooklyn, N. Y., Aug. 4, 1855, of a very musical family, his father and two uncles being among the best known violinists of their time. At the age of eight Emil was already a regular violinist in Jullien's orchestra, and when only sixteen he joined the orchestra of Theodore Thomas as first violin. Accepting a similar position with the Boston Symphony Orchestra, he moved to Boston in 1884. In 1888 he began his career as conductor at the head of the Germania Orchestra and, simultaneously, of the Boston Festival Orchestra; with the latter organization he made extended tours of the United States. In 1899 he was elected conductor of the famous Handel and Haydn Society, in 1902 of the Apollo Club, and in 1915 of the Brookline Choral Society, holding all these positions till his death. Besides, he conducted the People's Symphony Concerts from 1920 to 1925. At the St. Louis Exposition, 1904, and at the Panama-Pacific Exposition, 1915, he conducted the concerts given by the Boston Symphony Orchestra.

MOLYBDENUM. See CHEMISTRY, INDUSTRIAL.

MONACO, mŏn′ȧ-kō. A principality on the Mediterranean coast, surrounded on the land sides by the French department of Alps Maritimes. Area, eight square miles: population, according to the census of 1923, 22,153. It is chiefly known for its gambling resort, Monte Carlo (population in 1923, 9428). Other towns are Monaco (2020) and La Condamine (10,705). Under the constitution of Jan. 7, 1911, the government consists of the prince assisted by a council of state and a national council elected by universal suffrage. The ruler in 1927 was Prince Louis II, born July 12, 1870, who succeeded his father, Prince Albert, June 26, 1922.

MONEY. The table on page 533 from the annual report of the Director of the United States Mint shows the distribution of the stock of money in the United States on June 30, 1927, in comparison with the totals for June 30, 1926, Nov. 1, 1920, and Jan. 1, 1879.

LOCATION, OWNERSHIP, AND PER CAPITA CIRCULATION OF MONETARY STOCK IN THE UNITED STATES, JUNE 30, 1927

[*From the Report of the Director of the Mint*]

		Money held in the Treasury					Money outside of the Treasury			
									In circulation	
Kind of money	*Stock of money* [a]	*Total*	*Amount held in trust against gold and silver certificates (and Treasury notes of 1890)*	*Reserve against United States notes (and Treasury notes of 1890)*	*Held for Federal reserve banks and agents*	*All other money*	*Total*	*Held by Federal reserve banks and agents* [b]	*Amount*	*Per capita* [c]
Gold coin and bullion ...	[d] $4,565,098,136	$3,651,406,436	$1,625,278,749	$155,420,721	$1,712,002,986	$158,704,030	$913,691,700	$527,635,307	$386,056,393	$3.30
Gold certificates	[e] 1,625,278,749	....	....	....	....	....	1,625,278,749	618,203,910	1,007,074,839	8 61
Standard silver dollars ..	537,944,446	476,106,037	470,926,704	....	....	5,179,333	61,838,409	13,121,549	48,716,860	.42
Silver certificates	[e] 469,599,900	....	....	....	....	....	469,599,900	93,801,659	375,798,241	3.21
Treasury notes of 1890 .	[e] 1,326,804	....	....	....	....	....	1,326,804	... .	1,326,804	.01
Subsidiary silver	295,589,859	5,246,729	....	....	....	5,246,729	290,343,130	14,738,650	275,604,480	2.36
United States notes	346,681,016	3,230,183	....	....	....	3,230,183	343,450,833	51,245,380	292,205,453	2.50
Federal reserve notes ...	2,077,473,195	959,560	....	....	....	959,560	2,076,513,635	373,670,198	1,702,843,437	14.56
Federal reserve bank notes	4,854,238	192,906	....	....	....	192,906	4,661,332	55,757	4,605,575	.04
National bank notes	704,146,267	19,028,416	....	....	....	19,028,416	685,117,851	35,060,515	650,057,336	5.56
Total, June 30, 1927	8,581,787,157	[f] 4,156,170,267	2,096,205,453	155,420,721	1,712,002,986	[g] 192,541,157	6,471,822,343	1,727,532,925	4,744,289,418	40.57
Comparative totals:										
June 30, 1926	8,373,660,229	[f] 4,207,918,206	2,139,770,428	154,188,886	1,717,348,285	196,610,657	6,305,512,451	1,470,860,384	4,834,652,117	....
November 1, 1920....	8,326,338,267	[f] 2,406,801,772	696,854,226	152,979,026	1,206,341,090	350,626,530	6,616,390,721	987,962,989	5,628,427,732	52.36
July 1, 1914	3,738,288,871	[f] 1,843,452,323	1,507,178,879	150,000,000	....	186,273,444	3,402,015,427	....	3,402,015,427	34,35
January 1, 1879	1,007,084,483	[f] 212,420,402	21,602,640	100,000,000	....	90,817,762	816,266,721	....	816,266,721	16.92

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[a] Includes United States paper currency in circulation in foreign countries and the amount held by the Cuban agency of the Federal Reserve Bank at Atlanta. Does not include silver bullion (a potential monetary asset) to the value of $6,925,100, nor nickel and bronze coin, the value of which depends almost exclusively on the Government impression rather than intrinsic metallic value or a specific reserve.

[b] Includes money held by the Cuban agency of the Federal Reserve Bank of Atlanta.

[c] Population of continental United States (estimated) June 30, 1927, 116,943,000; June 30, 1926, 115,528,000; Nov. 1, 1920, 107,491,000; July 1, 1914, 99,027,000; Jan. 1, 1879, 48,231,000.

[d] Does not include gold bullion or foreign coin outside of vaults of the Treasury, Federal reserve banks, and Federal reserve agents.

[e] These amounts are not included in the total since the money held in trust against gold and silver certificates and Treasury notes of 1890 is included under gold coin and bullion and standard silver dollars, respectively.

[f] The amount of money held in trust against gold and silver certificates and Treasury notes of 1890 should be deducted from this total before combining it with total money outside of the Treasury to arrive at the stock of money in the United States.

[g] This total includes $19,693,297 of notes in process of redemption, $139,124,060 of gold deposited for redemption of Federal reserve notes, $7,355,599 deposited for redemption of national bank notes, $2,880 deposited for retirement of additional circulation (act of May 30, 1908), and $6,426,700 deposited as a reserve against postal savings deposits.

NOTE.—Gold certificates are secured dollar for dollar by gold held in the Treasury for their redemption; silver certificates are secured dollar for dollar by standard silver dollars held in the Treasury for their redemption; United States notes are secured by a gold reserve of $155,420,721 held in the Treasury. This reserve fund may also be used for the redemption of Treasury notes of 1890, which are also secured dollar for dollar by standard silver dollars held in the Treasury. Federal reserve notes are obligations of the United States and a first lien on all the assets of the issuing Federal reserve bank. Federal reserve notes are secured by the deposit with Federal reserve agents of a like amount of gold or of gold and such discounted or purchased paper as is eligible under the terms of the Federal reserve act. Federal reserve banks must maintain a gold reserve of at least 40 per cent, including the gold redemption fund which must be deposited with the United States Treasurer, against Federal reserve notes in actual circulation. Lawful money has been deposited with the Treasurer of the United States for retirement of all outstanding Federal reserve bank notes. National bank notes are secured by United States bonds except where lawful money has been deposited with the Treasurer of the United States for their retirement. A 5 per cent fund is also maintained in lawful money with the Treasurer of the United States for the redemption of national bank notes secured by Government bonds.

MONEY RATES. See BANKS AND BANKING; BUSINESS REVIEW; FINANCIAL REVIEW.

MONGOLIA. A vast and indefinite tract of territory lying to the west of Manchuria. Area, about 1,875,000 square miles, although some authorities place it as low as 1,367,000 square miles. Population, variously estimated at 750,000 to 2,000,000. Capital and chief town, Urga. It is inhabited by nomadic Mongol and Kalmuk tribes, but latterly the Chinese have immigrated in considerable numbers. The chief occupation is stock raising, and the principal exports are furs, skins and hides, horns, and wool. The soil is naturally fertile but needs irrigation to be productive. Gold, iron, copper, silver, and tin, are found, but are not worked extensively. Since 1917 there has been a motor car freight service across the Gobi desert. The trip takes three days and is only feasible in the summer.

MONOPLANES. See AËRONAUTICS.

MONTAGU, LOUIS SAMUEL. See SWAYTHLING.

MONTANA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 548,889. The estimated population on July 1, 1927, was 714,000. The capital is Helena.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, winter	1927	625,000	13,750,000	$12,650,000
	1926	521,000	7,294,000	7,805,000
Wheat, spring	1927	3,202,000	65,952,000	63,973,000
	1926	3,049,000	37,450,000	42,318,000
Hay	1927	2,139,000	3,701,000[a]	30,192,000
	1926	1,702,000	2,377,000[a]	24,645,000
Barley	1927	195,000	6,435,000	8,861,000
	1926	150,000	3,600,000	2,304,000
Flaxseed	1927	239,000	2.438,000	4,266,000
	1926	165,000	693,000	1,282,000
Potatoes	1927	40,000	5,400,000	3,510,000
	1926	35,000	2,975,000	3,570,000
Oats	1927	596,000	23,840,000	10,490,000
	1926	641,000	16,666,000	8,833,000
Rye	1927	134,000	2,412,000	1,761,000
	1926	107,000	1,284,000	963,000
Corn	1927	805,000	7,168,000	5,161,000
	1926	359,000	3,949,000	3,633,000
Dry Beans	1927	55,000	935,000	2,805,000
	1926	48,000	430,000	1,204,000

[a] tons.

MINERAL PRODUCTION. The State again ranked second in 1925 in the quantity of copper produced, and copper furnished nearly half the total value of the mineral output of that year. In 1926 copper production declined slightly, being in amount, 255,372,862 pounds, as against 268,910,847 pounds in 1925; in value, the production was $38,185,340 in 1925. Zinc produced totaled 147,401,507 pounds in 1926, with a value of $11,055,113, and in 1925 115,316,922 pounds, with a value of $8,764,086. Lead production rose to 42,306,193 for 1926, from 37,530,644 for 1925; the 1925 production was valued at $3,265,166. Gold and, more particularly, silver production continued important. The quantity of gold produced in 1926 was 60,504 fine ounces; in 1925, 82,123 fine ounces. Its value in 1925 was $1,697,630. There were produced of silver 12,769,092 fine ounces in 1926; in 1925, 13, 158,191 fine ounces, valued at $9,131,784. The value of the production of all five metals above mentioned was for 1926, $59,410,453; for 1925, $61,044,006. Coal production was approximately maintained, being 2,905,000 short tons in 1926 as against 3,043,686 tons in 1925. The value of this product for 1925 was $7,879,000. Petroleum was produced to the extent of 7,645,000 barrels in 1926; in 1925, 4,091,000 barrels. The product for 1926 had a value of $11,800,000; for 1925, $6,420,000. Manganese ore was produced in considerable quantity. The total value of the State's mineral production in 1925, duplications eliminated, was $79,261,284; in 1924, $70,631,806.

The value of gold, silver, copper, lead, and zinc produced from Montana mines in 1927, according to estimates of the U. S. Bureau of Mines, was $48,078,000, a decrease from $59,410,453 in 1926. Curtailment of operations at Butte together with the increase in metal prices resulted in a general increase in the quantity and value of the five metals. A decrease of about 12 per cent was shown in the output of copper, and there was a corresponding decrease in the associated gold and silver. The value of the gold output decreased from $1,250,731 in 1926 to $1,111,500 in 1927. The largest gold producers in the State were the Anaconda, St. Louis, Liberty Montana, New Gould, Sterling (Keating), Butte & Superior, and Angelica properties. There was naturally a decrease in gold from copper ores, but there was also a large decrease in gold from gold ores. The mine output of silver decreased to 11,097,100 ounces in 1927, and the value to about $6,292,000. The output of silver was decidedly less on account of the curtailment in the output of copper ore from Butte. The mines of the Anaconda Copper Mining Co. and the Butte & Superior Mining Co. produced nearly three-fourths of the State's silver. The copper output decreased to about 224,600,000 pounds in 1927, and the value to about $29,198,000. Decrease of output of copper in Montana, as in other States, was in part a reflection of the decrease of about one cent a pound in average price of copper in 1927. The Anaconda Copper Mining Co., as in the past, produced most of the copper from its mines at Butte. The milling and smelting of copper ore was done almost exclusively at Anaconda, although two mills making copper concentrate were operated in Cascade and Madison Counties.

The production of lead decreased to about 36,500,000 pounds valued at $2,471,000 in 1927. The output of zinc recovered from ore mined in Montana decreased to about 143,400,000 pounds in 1927. The value decreased to about $9,005,500. The electrolytic zinc plant near Great Falls was operated continuously, treating concentrate from Anaconda and Butte and custom material chiefly from Idaho and Utah.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $5,272,745; their rate per capita was $7.71. They included $1,244,190 apportioned for education. Totals not included in the above, of $520,499 in interest and $1,541,607 in permanent improvement outlays, brought the aggregate of State expenditures to $7,334,851. Of this, $1,163,846 was for highways: $159,368 being for maintenance and $1,004,478 for construction.

Revenue receipts were $8,419,007; or per capita, $12.31. Of their total, property and special taxes furnished 31.1 per cent, attaining a rate of $3.83 per capita. Earnings of departments and compensation paid the State for the services of officials supplied 9.9 per cent of revenue; 24.2

per cent was derived from sale of licenses, chiefly on incorporated companies and from a sales tax on gasoline. Revenue from motor vehicle licenses did not appear in State revenue, being credited to the counties.

Net State indebtedness on June 30, 1926, was $4,785,178, or $7 per capita. Property subject to ad valorem taxation bore a valuation of $429,945,385. State taxes levied were $1,919,501, or $2.81 per capita.

Transportation. The number of miles of railroad line in the State Jan. 1, 1927, was 5,094.62. There was no new construction in the course of 1927.

Education. The State was among those which enacted provisions for the distribution of equalization funds in the course of the year. It was estimated that the amount provided in Montana, while relatively not large, would render possible the holding of nine months of school a year in several hundred of the less fortunate districts where school time had previously been shorter. A teachers' retirement bill was introduced but not passed.

Charities and Corrections. Among the charitable and correctional institutions of the State were the following: State Soldiers' Home; State School for the Deaf and the Blind; State Prison; State Hospital for the Insane; State Tuberculosis Sanatorium; State Industrial School for Boys; State Vocational School for Girls; State Orphans' Home. Prisoners in the State penitentiary on Jan. 1, 1927, according to statistics furnished by the Department of Commerce, numbered 437; the number admitted in 1926 was 277.

Legislation. The State Legislature convened in biennial session January 3. The charge was made in the Senate that a bill passed in the next previous session, setting 4 per cent as the rate of interest to be paid on State warrants, had been altered after passage, so that the rate as given in the statute book was 4½ per cent, thus increasing the State's interest payments. An investigating committee was named to make an inquiry. The State Senate tried the former Secretary of State, Charles T. Stewart, on an impeachment, and found him guilty of having accepted commissions on State insurance policies written at the order of the State Board of Examiners, of which he was a member. Stewart was impeached by the House on March 3.

Political and Other Events. A controversy between the State and the Federal government over a sum said by the latter to be owed by the State led to the reported suspension in September, of a payment of $1,551,499 of Federal contribution to the State road building programme. The extermination of wild horses, which had become so numerous as to impoverish the ranges as pasturage for cattle, was carried on.

Officers. Governor, J. E. Erickson; Lieutenant Governor, W. S. McCormack; Secretary of State, William Powers; Treasurer, W. E. Harmon; Auditor, George P. Porter; Attorney General, L. A. Foot; Superintendent of Public Instruction, May Trumper.

Judiciary. Supreme Court: Chief Justice, Lew L. Callaway; Associate Justices: John A. Mathews, Albert J. Galen, Albert P. Stark and Henry L. Myers.

MONTANA, State University of: A coeducational State institution of higher education at Missoula, Mont.; founded in 1895. The enrollment for the autumn of 1927 was 1411, of whom 760 were men and 451 were women, distributed among the various schools as follows: arts and sciences, 950; business administration, 56; forestry, 84; journalism, 122; law, 59; music, 32; pharmacy, 59; music specials, 37; unclassified, 12. In the summer session 472 students were registered, of whom 121 were men and 351 were women. The faculty had 90 members. The productive funds and income for the year amounted to $489,044.46. There were about 103,000 volumes in the library, including government documents. President, Charles H. Clapp, Ph.D.

MONTENEGRO, mōn′tä-nā′grō. An integral part of the state of Jugo-Slavia (q.v.). Before the war it was a Balkan kingdom, bounded by Serbia on the east, Albania on the south, Dalmatia on the west, and Herzegovina on the west and north, with an area of 5603 square miles and a population of 436,789 on Jan. 1, 1917. After Dec. 1, 1918, its status was indeterminate until 1921 when it became an integral part of Jugo-Slavia. The area in 1921 was placed at only 3733 square miles, and the population, according to the census of that year, 199,857. Capital, Cettinie, with a population of 5500.

MONTREAL. See Typhoid Fever.

MONTSERRAT, mŏnt′sĕ-răt′. One of the presidencies of the Leeward Islands (q.v.).

MOORE, Willis Luther. An American meteorologist, died at Pasadena, Cal., on December 18. He was born on Jan. 18, 1856, at Scranton, Pa. His early schooling was in the Binghamton, N. Y. public schools; afterwards he worked his way through Norwich College, and took advanced degrees at St. Lawrence College. He began to specialize in meteorology and entered the U. S. Signal Corps (now Weather Bureau) and was a student of natural science for many years. He passed through successive grades to become local forecast official at Milwaukee, Wis., in 1891. He was chief of the Weather Bureau at Washington, D. C., from 1895 till 1913 and did much to popularize weather conditions as a subject for scientists to study and for the public to understand. He was the author of *Descriptive Meteorology* (1901). *The New Air World* (1922), and when seized with his last illness was engaged in completing a book and compiling information on weather conditions for trans-oceanic aviators. He was a past president of the National Geographic Society.

MORAVIANS. A religious denomination comprising, in the United States, three branches: The Moravian Church (Unitas Fratrum); the Evangelical Union of Bohemian and Moravian Brethren in North America; and the Independent Bohemian and Moravian Brethren Churches. It was formed in Bohemia in 1457, under the leadership of John Huss and Jerome of Prague, and opposed the efforts of Austria and the Roman Catholic authorities to suppress it. At the beginning of the Reformation it had more than 400 churches. In 1741 Moravians settling at Bethlehem, Pennsylvania, founded the first Moravian church in the United States. The doctrine is evangelical, without doctrine peculiar to itself, and in its polity the denomination follows a modification of the episcopacy, having a ministry of three orders, bishops, presbyters, and deacons.

The Unitas Fratrum, the largest branch, is organized in two coördinate provinces: the Northern, with a provincial synod meeting every fifth year (a meeting of the Northern Province was to be held in 1930); and the Southern, of which the provincial synod meets every third year. The church maintains the following five educational institutions: Linden Hall, Lititz, Pa.; Moravian College and Theological Seminary and Moravian Seminary and College for Women, Bethlehem, Pa.; Nazareth Hall, Nazareth, Pa.; and Salem Academy and College for Women, Winston-Salem, N. C. Missionary workers are maintained in southern California and Alaska, and abroad, in Nicaragua, the West Indies, Jamaica, Labrador, Surinam, South America, the Himalayas, and Unyanwesi, Central Africa. The official periodical, *The Moravian*, is published weekly at Bethlehem, Pa. In 1927 there were: 131 churches; 159 ministers; 25,820 communicant members, while the actual membership was estimated at 35,942; and 123 Sunday schools with 21,534 scholars.

The Evangelical Unity of Bohemian and Moravian Brethren in North America, of which the first congregation was organized in 1864, at Wesley, Tex., is under the direction of a synod which meets each year on July 6, the day of the death of John Huss. In 1926 this denomination reported 34 churches in North America with 5241 members and 24 Sunday schools, with an enrollment of 1708; total expenditures were $12,023; and church property was valued at $76,700. The Independent Bohemian and Moravian Brethren Churches were founded in 1858 in College Township, Iowa. In 1926 there were three churches with one minister and 356 members. Three Sunday schools had 381 scholars.

MORMONS. See Latter-Day Saints, Church of Jesus Christ of.

MOROCCO. The largest of the Barbary states, occupying the northwestern corner of the continent of Africa; bounded on the west by the Atlantic Ocean, on the north by the Mediterranean Sea, on the east by Algeria, and on the south by the Sahara Desert and the Spanish colony of Rio de Oro. From an administrative and political point of view, Morocco is divided into three zones: First, and most important, the French protectorate, including approximately 85 per cent of both area and population, with Fez as the political capital and Casablanca as the leading port and commercial centre; second, the Spanish protectorate, a narrow strip of land extending for about 300 miles from the Atlantic Ocean along the Mediterranean with Ceuta, Melilla, and Tetuan as the principal localities; and third, the international Tangier zone, ruled in accordance with the terms of the Paris convention of Dec. 18, 1923, between France, Great Britain, and Spain. The latest estimate of the total area places it at 218,525 square miles, of which the area claimed by Spain for her zone in the north was 8000 square miles; for her southern zone, 9500 square miles; and for Ifni on the west coast, 800 square miles. In 1921, the area effectively held by the French was estimated at 92,664 square miles.

A census of the French Zone taken in March, 1926, puts the population at 4,016,882 native Moslems, 107,552 native Jews and 104,712 foreigners, making a total of 4,229,146. That of the Spanish Zone may be put at something under 1,000,000 and that of the Tangier Zone at about 80,000. The largest towns in the French zone with their populations according to the census of 1926 are: Marrakesh, 194,254; Casablanca, 107,787; and Fez, 81,163. In the Spanish zone the largest town is Tetuan with a population of 24,000. The population of Tangier is approximately 60,000. The chief languages are French, Spanish, Arabic, and Berber dialects. According to the latest available statistics, there were in the French zone 199 schools; in the secondary schools there were 188 teachers and 2822 pupils; in the high schools, 26 teachers and 417 pupils; in the primary schools, 645 teachers and 23,327 pupils; in the professional schools, 79 teachers and 1029 pupils. There are Moslem schools at Rabat and Fez, and a research institute for the study of the Arabic and Berber languages at Rabat.

Production. Agriculture is by far the most important industry, although the country must depend upon timely rainfalls to reap the full benefit of the soil's possibilities. The methods and implements of farming are very crude. The yield of the principal crops in metric quintals in 1925 was as follows: barley, 12,287,479; wheat, 7,723,523; beans, 311,026; oats, 164,432; maize, 1,194,566; chickpeas, 190,778; linseed, 130,680. In the same year there were 3,215,595 olive trees, 170,849 orange and lemon trees, 326,924 palm tree (dates), 1,154,184 almond trees, and 2,956,197 fig trees. The latest estimate of animals in the French Zone (1925) was: cattle, 1,954,000; sheep, 9,277,000; goats, 2,930,000; pigs, 67,000; horses, 185,000; asses, 563,000; camels, 116,000. Over 3,000,000 acres of the total area is covered by forests, but only one-sixth can be exploited at present, owing to the lack of transportation facilities and uncertain conditions in many parts of the country. Cork and gum are the main products from this source. The development of the rich mineral resources of Morocco is also retarded by the adverse conditions which prevent the exploitation of the forests. No coal is to be found, but the phosphate mines in the vicinity of Casablanca are steadily increasing their output, which was estimated at 700,000 tons in 1925 as compared with 400,000 in 1924. These mines are exploited by the government and under its monopoly. Iron mines in the Spanish zone are also being exploited.

Commerce. Of total imports in 1926, valued at 1,692,268,000 francs (franc averaging $0.0333), as compared with 1,189,605,000 francs in 1925 (franc averaging $0.04676), France with Algeria furnished two-thirds. A substantial part of the imports from France, however, originated in other countries. England and Gibraltar ranked second as suppliers, with 12.5 per cent, the United States third, with 5.5 per cent; followed by Belgium and Italy. Imports from the United States increased in nominal value over 1925 by almost 85 per cent. This does not by any means represent the whole of the import trade from that country, for a considerable amount of merchandise credited to France, Belgium, and Spain came originally from the United States. The trade with the United States was of a varied nature, but considerably more than 50 per cent was composed of petroleum products.

Manufactured goods comprise only 5 per cent of the exports from French Morocco, the balance being the products of phosphate beds, mines, forests, agriculture, and stock raising. France, with Algeria, took 45 per cent of the total exports in 1926, at a value of 710,555,000 francs as compared with 564,417,000 francs in 1925. Other principal buyers were Spain and its islands, together with Spanish Morocco, 24.5 per cent; England and Gibraltar, 10.5 per cent; Italy, 4 per cent; and the United States 2.4 per cent Exports to the United States, on a nominal franc basis, showed a gain over 1925, but on a dollar basis their value was about 13.5 per cent below that of 1925. Imports in the Spanish Zone in 1924 totaled 123,000,000 pesetas and exports 18,000,000 pesetas. Imports in the Tangier Zone in 1925 amounted to 108,061,614 francs and exports to 18,096,725 francs.

Finance. The estimated revenue of the French Zone in 1926 was 407,422,020 francs and the estimated expenditure, 406,915,772 francs. The budget for the Spanish Zone in the same year balanced at 18,233,550 pesetas. In 1927 the revenue for the Tangier Zone was estimated at 25,575,000 francs and the expenditure 24,392,409 francs.

Communications. In 1925, 1752 vessels of 2,045,570 tons entered the ports of French Morocco and 1557 vessels of 1,102,816 tons entered the port of Tangier. There are about 730 miles of railroad in French Morocco, 308 in the Spanish Zone, and none at all in the Tangier Zone.

Government. The Tangier Zone is permanently neutralized and demilitarized and is governed by an international control organization. The French Zone constitutes a protectorate, under a French and native administration. Its status was defined in the treaty of Mar. 30, 1912. The highest local authority is the French Resident General. The office of Sultan continues but the Sultan is obliged to follow the advice of the French Resident General in all matters. The native Shereefian administration comprises a Grand Vizier and the Viziers of Justice, Crownlands, Pious Foundations, and Instruction, and the Resident of the Native High Court. The position of War Minister is held by the officer commanding the French troops in Morocco. Sultan in 1927, Mulai Yusef (proclaimed Aug. 18, 1912; died Nov. 17, 1927; succeeded by his son, Mulai Mohammed, born 1913); French Resident General, Theodore Steeg (appointed Oct. 11, 1925). Spanish High Commissioner, General Sanjurjo.

MORROW, Dwight W. See Mexico, under *History*.

MORSS, Charles Anthony, American banker, died at Cohasset, Mass., on July 5. He was born in Boston, Mass., July 13, 1857. He graduated from high school in 1875 and entered the wool business. He was admitted as a partner to the firm of Hobbs, Taft and Co., in 1884 and later became associated with his father in the wool business. In 1917 he was appointed governor of the Federal Reserve Bank of Boston. He held this position for five years, and during his term of office he directed successful campaigns for the third and fourth Liberty Loans. It was under his leadership that a new Federal Reserve Bank was built. He resigned in 1922 to devote more time to his business interests. He was a director of the Simplex Wire and Cable Company, the Simplex Electric Heating Company and the Morss and Whyte Company.

MOSAIC DISEASES OF PLANTS. See Botany, under *Plant Diseases*.

MOTH FUMIGANT. See Chemistry, Industrial.

MOTHS. See Entomology, Economic.

MOTION PICTURES. See Moving Pictures.

MOTOR BOATING. See Yachting.

MOTOR CARS. See Automobiles; Roads and Pavements.

MOTOR FUEL. See Chemistry, Industrial.

MOTOR VEHICLE TAX. See Roads and Pavements.

MOUNT HOLYOKE COLLEGE. An institution for the higher education of women at South Hadley, Mass.; founded in 1837. The registration for the autumn session of 1927 was 1006, divided as follows: seniors, 250; juniors, 240; sophomores, 227; freshmen, 271; specials, 3; graduate students, 15. The faculty, including professors, associate professors, assistant professors, instructors, and chief administrative officers, numbered 122, exclusive of 40 assistants, readers, graduate teaching fellows, curators, and secretaries. During the year 20 new appointments were made to the faculty, including Lawrence B. Wallis, assistant professor of English Literature, Erika von Erhardt-Siebold, associate professor of English Literature, Pattis J. Groves, M.D., assistant professor of hygiene, Blanche B. Boyer, assistant professor of Latin. The productive funds of the College amounted to $3,901,247.85, and the income for the year to $181,313.59. There were 99,000 volumes in the library. President, Mary Emma Woolley, A.M., Litt.D., L.H.D., LL.D.

MOVING PICTURES. The industry was characterized by great activity during the year. A large number of new productions, some of really great merit, were brought out, as well as many that were quite mediocre in quality. Many new large theatres were built and apparently drew crowds as much by their novelty and unusually gorgeous interiors as by the photoplays that were shown. In New York City alone, two new theatres of very large seating capacity were opened, the Roxy and the Paramount. The designs of the exteriors were distinctly modern and the heights were in keeping with other high buildings of recent construction, while the interiors were exceedingly elaborate in finish, furnishings and equipment. In many of the older and the medium size houses there was an increasing tendency to combine vaudeville with pictures; others again, as in past years, made a specialty of offering some of the big "releases" with reserved seats, at legitimate theatre prices.

In Europe, especially in England and France, great efforts were being put forth in attempts to establish the film industry on a firmer basis, as American competition, as had been the case for some years, was making such serious inroads into the business that it was felt that something must be done. In all the cities in the countries mentioned, American pictures were usually shown and the films of domestic make were in a small minority. At the close of the year, there was a noticeable advance reported and it was said that a large number of photoplays of strictly English origin were about to be produced. Moreover, the public were appealed to, through the press, to patronize those cinemas showing strictly English productions. Talking moving pictures were further developed and the apparatus for recording and reproducing pictures and music simultaneously were considered to have advanced in a marked degree. Some of the public demonstrations were with music to accompany feature films, the music being supplied by a large orchestra. The music of the latter was recorded on a film, after which, picture, titles and sound record were printed on one film in the proper time relation.

The U. S. Department of Commerce during the year published statistics of the world's motion picture industry, based on a report from one of its European trade commissioners. It was stated that there were approximately 52,000 motion picture theatres scattered over the whole globe, with a capacity of about 20,000,000, for a population of 1,750,000,000. America provided 53 seats for every 1000 persons, while in Europe the average was below 20 seats. The capital invested in the motion picture industry in the world was estimated at from $2,500,000,000 to $3,000,000,000. Of these figures, America's share was approximately $2,000,000,000. On the basis of the entire population of the world, each inhabitant's per capita share in the invested capital of the industry would be $1.50, but on the basis of countries the average per capita share of each inhabitant would be as follows: United States, $13.00; North and South America, $8.20; England, $5.70; Germany, $4.00; France, $2.50; all of Europe, $2.20.

The statistics quoted do not include admission receipts which were estimated at about $1,000,000,000 yearly. The following table shows the distribution of theatres in proportion to the population in the regions of the world:

Regions	*Population*	*Number of cinemas*	*Number of seats*	*Average number of seats per 1,000 persons*	*Capital invested (millions)*	*Per capita share*
Europe	451,000,000	22,000	9,000,000	20	$1,000	$2.20
America	207,000,000	25,000	11,000,000	53	1,700	8.20
Australia	8,000,000	1,200	350,000	44	10	1.20
Africa	132,000,000	800	200,000	1.5	2	.01
Asia	995,000,000	3,000	600,000	.6	3	.003
Total	1,793,000,000	52,000	21,150,000	10.5	2,715	1.50

A new type of camera and a new reproducing projector were developed that gave highly satisfactory results. So far as could be observed, however, public interest was not stimulated to the extent that might have been expected; yet it seemed likely that this type of entertainment would have its special field after it became a regular part of the producing business.

MOYES, THE REV. JAMES. Roman Catholic theologian and historian, died at London, England, on March 11. He was born in Scotland in 1851, educated in Ireland, in France and in Rome, but spent 50 years of his working life in England. At the age of 25 he was a professor at St. Bede's College, Manchester. Bishop (afterwards Cardinal) Vaughan made him Canon Theologian of Salford in 1891 and sent him to London in the following year; and from 1895 until his death Canon Moyes was a theologian in the archdiocese of Westminster. For a time he was honorary secretary of the Historical Research Society. He was editor of *The Dublin Review* from 1892 to 1903, and he also contributed many controversial articles to *The Tablet*. His work *Aspects of Anglicanism* (1907) aroused interest.

MOZAMBIQUE. See PORTUGUESE EAST AFRICA.

MUIR, JOSEPH JOHNSTONE. American clergyman and chaplain of the U. S. Senate, died at Washington, D. C., November 17. Born in Parsonstown, Ireland, in 1847, he was educated in private schools in Ireland and Scotland and was ordained in the Baptist ministry in 1869. He went to the United States four years later. The first pulpit he occupied was at Montana, N. J., and he successively held pastorates at East Marion, New York, from 1871–73; Ticonderoga, N. Y., 1873–75; MacDougal Street Church, New York City, 1875–79; Park Church, Port Richmond, N. Y., 1880–83; North Church, Philadelphia, 1883–89, and Temple Baptist Church, Washington, D. C., from which he resigned in 1924, after 35 years of service. In January, 1921, he was appointed chaplain of the U. S. Senate.

MULDOON, RT. REV. PETER J. Roman Catholic bishop, died at Rockford, Ill., October 8. He was born in Columbia, Cal., Oct. 10, 1863. He received his education in schools in California and Kentucky and at St. Mary's College, Baltimore. Ordained in 1886 he became auxiliary bishop of Chicago in 1901. In 1908 he was chosen to administer the newly formed Rockford diocese which was composed of 12 counties formerly in the Chicago area. He remained in this diocese until he died. He was a very active chairman of the administrative committee of the National Catholic War Council.

MUNICIPAL GOVERNMENT. Adoption of a council-manager charter by Indianapolis, rejection of a proposed charter amendment designed to do away with the city manager and proportional representation at Cleveland, adoption of a new charter at Buffalo under which the city will return to the mayor-council plan after having been under commission government for 10 years, conviction of the mayor of Indianapolis under the State corrupt practices act of accepting money before election with the understanding that the giver would be permitted to name members of the new Board of Public Works, were outstanding events of the year. For reasons given below the Indianapolis charter was not to go into effect until Jan. 1, 1930. When Indianapolis and Rochester came under the city-manager plan, which Rochester was to do early in 1928, there would be 11 cities with over 100,000 population each by the census of 1920 that have city managers. In order of population these are: Cleveland, Cincinnati, Indianapolis, Kansas City, Rochester, Norfolk, Dayton, Grand Rapids, Miami, Tampa and Fort Worth. Virtually committed to the city-manager plan was Toledo, Ohio, which in November, 1927, elected a charter drafting commission, all the members of which had previously announced that they were in favor of the manager plan, as did also 13 other candidates who were not elected. According to *Public Management*, up to Mar. 10, 1927, 346 cities in the United States, 16 in Canada and two in New Zealand had adopted the manager plan. During the year the manager plan was rejected by popular vote at Warren, Ohio, and at Chickasaw and Guthrie, Okla., but Auburn, N. Y., voted to retain the plan instead of returning to ward aldermen. The rejection of the proposal to amend the charter of Cleveland, Ohio, by eliminating the city manager and proportional representation, was by a majority of about 6400 votes in a total of 154,000. Most, but not all, of the municipalities having managers were operating under typical council-manager charters. In some cases the manager is appointed by ordinance, as was provided for late in the year at Englewood, N. J., where the new official was to take office in January, 1928, and is called city supervisor.

Indianapolis adopted the council-manager plan at a special election on June 21 by a vote of 64,000 to 7000. The council consists of seven members, elected by plurality vote. The manager, to be appointed by the council, need not be a resident of either the city or the State. The charter does not provide for the referendum, initiative or recall. In anticipation of the adoption of a council-manager charter at Indianapolis and perhaps in other of the larger cities of Indiana, the Indiana legislature passed an act providing that all city officials should serve out the time for which they were elected. While this act was designed by opponents of the manager plan, and to protect officeholders, it helped disarm opposition to the new charter for Indianapolis. Other events, outlined below, defeated the purpose of the act so far as the mayor of Indianapolis was concerned. The term of the mayor of Indianapolis not expiring until 1930, the question was raised as to whether a new council could be elected until November, 1929, and the court decided that it could not. Meanwhile, the mayor of Indianapolis was put under trial for alleged violation of the State corrupt practices act, convicted and sentenced to be fined $1000 and imprisoned for 30 days. An appeal was pending at the close of the year. Following the sentences, there was a series of kaleidoscopic changes in the mayoralty situation at Indianapolis. Under the old charter, when a vacancy occurs in the mayoralty, the city comptroller became mayor. The convicted mayor appointed his wife as city comptroller; the mayor resigned and on the office being taken by his wife, she appointed a new city comptroller and then resigned, whereupon the appointee sought to take the mayor's chair. Meanwhile the defeated mayoralty candidate at the last election claimed the chair. Then the city council declared the office vacant and after a tie for some 30 ballots, a "dark horse" was chosen mayor in the person of a prominent business man.

The new charter for *Buffalo, N. Y.*, effective in January, 1928, was adopted by a vote of 32,000 to 21,000 at a special election held August 29. Under this charter Buffalo was to return to the mayor-council plan after 10 years of government by a commission of five members. The new council consists of 15 members, including the president, elected as such, five others elected at large, and nine elected three each from districts composed of three wards each. The only other elected officers are the mayor and the comptroller. Save for district councilmen, all these men are elected to serve four years. The mayor and the councilmen elected at large cannot be elected to succeed themselves and the district councilmen can be reelected for a second two-year term only. The elected officers will be nominated at party primaries, but there may be independent nominations. The principal executive departments of the city are: (1) executive, (2) surveys, (3) audit and control, (4) assessment, (5) public works, (6) parks, including recreation and airport divisions, (7) police (8) fire, (9) health, (10) social welfare, (11) law. All these departments have a single head except assessment, health, and welfare which are administered by boards, but there is an advisory airport board. Department heads and commissions are appointed by the mayor, with the exception of the board of assessors, which is appointed by a board composed of the mayor, president of the council and comptroller. All these appointments are subject to approval by the council, but the mayor has full power of removal of his appointees. The mayor, president of the council, and comptroller may be removed by the governor of the state. The charter contains civil service provisions. Although the charter declares that the legislative and executive powers are separate yet the mayor has a limited veto power over legislation and the council can refuse to confirm appointments by the mayor. Sole power of removal of department heads appointed by the mayor and confirmed by the council rests with the mayor.

COUNTY GOVERNMENT. For the second time in two years a proposed new charter for Westchester County, adjacent to New York City, was defeated. A constitutional amendment authorizing the consolidation of all the governmental bodies in Multnomah County, Oregon, including the city of Portland, was defeated at a special election on June 28. This is in line with several other defeats elsewhere during the past three years.

GENERAL VILLAGE LAW. Based on recommendations of a joint legislative committee, the New York Legislature enacted what is in effect a model village law, uniform for the 450 villages in the state, effective July 1, 1927. The law substitutes the title of mayor for that of village president heretofore used in New York State, and provides that the mayor and board of trustees shall be the only elective officers for villages. Mayors are made executive heads of village government and the trustees are made responsible for legislation. The new law permits the adoption of the manager plan by villages. It makes it necessary to install budget systems.

Indiana established State control of municipal budgets, tax levies and tax rates in 1927. Every local taxing unit must adopt a budget in form established by the State Board of Accounts. Such budgets stand unless an appeal is taken to the State Tax Board, whose decision, on the points covered in any petition, is final, but not until after advertised public hearing in the county where the budget was adopted. Appropriations after and outside the budget may be made to meet casualties, accidents or great emergencies, but they also are subject to appeal to the State Board of Tax Commissioners. Under a liberal interpretation of the law it would appear to be easy for a small group, or a number of groups, to throw into State control the financial and thus the legislative and administrative control of any city or other taxing district.

Bibliography. New books on municipal government include Buck, *Municipal Finance* (New York); Griffith, *Modern Development of City Government in the United Kingdom and in the United States* (London); McComb, *City Health Administration* (New York); Upson, *Practice of Municipal Administration;* White, *The City Manager* (Chicago). For directory and topical data of cities of Great Britain, see successive issues of *The Municipal Year Book*, and of broader British scope, see *The Empire Municipal Directory* (both London).

See City Planning, Garbage, Roads, Sewerage and Water-Works.

MUNICIPAL HOME RULE. See Municipal Government.

MUNICIPAL LEAGUE, National. An organization to promote efficient and democratic government in city, county, state, and nation; founded in 1894, and incorporated in 1923. It has committees of experts at work studying, from practices in different parts of the United States, sound principles of government methods and government administration. These committees submit reports which are approved by the League and distributed where they will have most effect. The active committees in 1927 were as follows: Committee on Government for Regional Areas· Committee on Municipal Budget Law; Committee on Revising Model City Charter; Committee on Election Administration. Recent publications included a model municipal bond law; a model system of election registration; and a monograph, *The Merit System in Government*.

The thirty-third annual meeting of the League was held in New York, Nov. 10 and 11, 1927. Joint sessions held with the Governmental Research Conference and the National Association of Civic Secretaries were unusually well attended. Topics of discussion included: Budget Procedure; Proposed Model Budget Law of National Municipal League; Special Assessments; State Supervision of Local Finances; Popular Misconceptions Regarding Crime; A Municipal Programme for Combating Crime: What Makes Public Opinion: Is the Slacker Vote a Menace?; Improving College Courses in Municipal Governments; University Training for Public Service.

Among the speakers on the program of the annual meeting were: Henry Burke, Assistant Budget Director of North Carolina; H. P. Siedemann, Washington; Charles J. Fox, Boston; Joseph O'C. McCusker, Maryland; George M. Link, Minneapolis; Philip Cornick, New York Bureau of Municipal Research; Philip Zoercher, Indiana State Board of Tax Commissioners; Bruce Smith, National Institute of Public Administration; W. B. Munro, Harvard University; Raymond Moley, Columbia University; Harry A. Overstreet, author of *Influencing Human Behavior;* A. C. Hanford, Harvard University; Samuel May, University of California. The officers of the League in 1927 were: Frank L. Polk, president; Carl H. Pforzheimer, treasurer; Clinton Rogers Woodruff, honorary secretary; H. W. Dodds, secretary, G. R. Howe, assistant secretary. Headquarters are at 261 Broadway, New York.

MUNICIPAL RESEARCH. See Municipal Government.

MURPHREE, Albert Alexander An American educator, died at Jacksonville, Fla., December 20. He was born at Walnut Grove, Ala., Apr. 29, 1870. He was educated at Walnut Grove College and at Peabody College, Nashville, Tenn., receiving his bachelor's degree at the University of Nashville in 1894. In 1887 he began teaching in rural schools in Tennessee, subsequently becoming superintendent of the city schools in Cullman, Ala., and principal of the Summit Institute, Ala. In 1895, he was professor of mathematics in Florida State College and two years later was president of that institution. On July 1, 1909, he became president of the University of Florida. He received the degree of LL.D. from the University of Alabama in 1919.

MUSCLE SHOALS. See Fertilizers; Alabama under *Political and Other Events;* Water Power.

MUSEUMS, Art. See Art Museums.

MUSIC. General News. In the musical world the year 1927 was memorable for the universal observance of the centenary of the death of Beethoven. The celebrations, begun with the opening of the fall season of 1926, did not end on the actual date of death (March 26), but continued uninterruptedly to the end of the calendar year. With very few exceptions the programmes contained only the masterpieces familiar to all lovers of music, and the inherent beauty and grandeur of these bid fair to outlast another century. Isolated performances of a few unfamiliar works only proved the futility of any attempt to reverse the general verdict of enlightened public opinion.

In connection with the musical celebration the city of Vienna exhibited in the Municipal Museum the greatest collection of Beethoveniana ever brought together. Delegates from 16 nations were present at the formal opening of this exposition, and the Austrian government issued a souvenir postal card with the likeness of Beethoven instead of the usual stamp. A memorable event of the Paris celebration was the performance of the *Missa Solemnis* in its entirety during actual High Mass at Nôtre Dame. There is no record of any performance of this work as part of a divine service prior to this occasion, when a splendid rendition was given under Gabriel Pierné conducting the Colonne Orchestra, a chorus of 400 voices and soloists from the Grand Opéra, while Widor presided at the organ. Innumerable cities presented the work in concert form, and the Boston Symphony Orchestra, after the conclusion of its regular series of festival concerts, repeated the *Missa Solemnis* at its annual concert for the benefit of the Pension Fund, instead of presenting the customary Wagner programme.

At La Scala, Toscanini, besides conducting all the symphonies, directed what came near being the local première of *Fidelio*, since the opera had been heard only once in Milan, in 1883. Even far-off Tokio honored the memory of the great master by a special Beethoven week, when all the symphonies, the *Missa Solemnis* and *Fidelio* were produced. A unique and lasting contribution to the centenary was made by the issue of phonograph records in a special Centennial Edition, all records being made by the new electrical process. The list includes complete recordings of all nine symphonies, the three great overtures (*Egmont, Coriolanus, Leonore No. 3*) and about 20 string-quartets, trios and sonatas.

The same phonograph company announced its intention of issuing a similar Schubert Centennial Edition for the coming Schubert centennial (1928) and offered a prize of $10,000 for a Scherzo and Finale to complete the famous Unfinished Symphony of that master. This competition, however, aroused such decided opposition among musicians, that the original plan was abandoned, and prizes aggregating $20,000 were offered for compositions "written in the style of Schubert." In this connection the Columbia Phonograph Company also announced that they had acquired possession of an original manuscript of Schubert containing 130 bars of the Scherzo of the Unfinished Symphony. This fragment was performed by the Judson Symphony Orchestra and broadcast during the Columbia Hour on October 30, with the further announcement, that any composer wishing to avail himself of this material for the competition was at liberty to do so.

Owing to the fact that the renovation of the Festspielhaus could not be completed in time, the semi-centenary of the establishment of the Bayreuth Festival was observed with lavish splendor one year late (July 19–August 20). The works produced were *Tristan und Isolde*, *Parsifal* and *Der Ring des Nibelungen*. The conductors were Dr. Karl Muck, Franz von Hösslin and Karl Elmendorff, while of the principal singers Nanny Larsen-Todsen, Emmy Krüger, Lauritz Melchior, Friedrich Schorr, Alexander Kipnis and Karl Braun were well known to American audiences. There was only one opinion regarding the playing of the orchestra and the singing of the chorus, which could only be characterized by the use of superlatives. The installment of the latest improvements in stage machinery, new decorations and costumes enabled the technical staff to attain a level of mechanical excellence superior to anything achieved before. For every performance the house was sold out.

The annual Donaueschingen Chamber-Music Festival, devoted exclusively to modernist compositions, was held this year at Baden-Baden, because the programme included five short operas, each of less than half an hour's duration, and there was no suitable theatre at Donaueschingen.

At the seventh Händel Festival in Göttingen (June 22–8), under the direction of Rudolf Schulz-Dornburg, the operas chosen for revival were *Ezio* and *Radamisto*.

Sixty-five years after its première, in St. Petersburg, Verdi's *La Forza del Destino* had its first performance anywhere in Germany at the Berlin Staatsoper, in April, under Leo Blech. No explanation of this belated German production of one of Verdi's best earlier works has been given.

With great pomp and ceremony the remains of Boccherini, who died and was buried in Madrid in 1805, were transferred, in October, to the magnificent mausoleum erected in his native city of Lucca.

In the museum of Burghausen Ernst Schmidt, of Tübingen, discovered the manuscript of an unknown Requiem in C Minor by Joseph Haydn. The work had its first performance in Munich, in December.

At an auction in New York, in May, the original manuscript score of Wagner's *Rheingold* was sold for $15,400, while a collection of 29 unpublished letters by the master brought $500.

A Chickering piano, which Liszt used in some of his concerts, was acquired by the manufacturers, who intended to use it for exhibition purposes. Their plan was to exhibit the instrument in various cities throughout the country in special recitals by famous pianists. The first of these recitals took place in New York, October 30, when Josef Lhevinne was the artist. The instrument was in excellent condition, but its tone was rather thin in comparison with the power and sound qualities of the concert grand of to-day.

The trustees of the Curtis Institute of Music, in Philadelphia, appointed a permanent director in the person of the famous pianist Josef Hofmann, who entered upon his new duties in the fall, and also opened the new concert hall with a recital (December 3). A additional gift of Mrs. Mary Curtis Bok increased the permanent endowment fund to $12,500,000, thus assuring the future of the institution.

After the consolidation of the Graduate School of the Juilliard Foundation and the Institute of Musical Art (See YEAR BOOK for 1919 and 1926) Prof. John Erskine, of Columbia University, was made chairman of the Board of Directors and Ernest Hutcheson dean of the Graduate School. It was estimated that, while formerly the Juilliard Foundation directly benefited about 200 students annually, the direct consolidation had increased the number to 1000. As a result of competitive examinations 95 scholarships were awarded.

On August 12, the entire country celebrated the 50th anniversary of the invention of Edison's phonograph. The importance of this invention to music cannot be over-estimated. Even discounting all improvements still to be made in the future, the present perfection of the phonograph itself and the new electrical process of recording assure faithful reproductions, in the minutest details, of the performances of individual artists or large bodies of instruments and choral masses. According to personal inclination the records can be used for æsthetic enjoyment or for critical study. Of what inestimable value would it be to us, if, instead of being obliged to depend upon mere description by contemporaries, we had actual records of the art of Paganini, Liszt, Rubinstein, Jenny Lind and others of almost legendary fame; whereas flawless specimens of the art of Paderewski, Hofmann, Kreisler, Caruso and a host of others are available, not only for our own present delight, but also for that of unborn generations.

From Berlin and Paris came reports of demonstrations by a Russian scientist, Professor Theremin of Moscow, who produced what he called "Music of the Ethereal Waves." As a matter of fact, he actually did produce musical sounds by merely moving his hands before a metal wand standing in a field of electro-magnetic waves. As to the value of the music produced competent opinion differs widely. Under the circumstances it seemed wise to reserve judgment, the more so as Professor Theremin arrived in New York in December for the purpose of demonstrating his invention in the United States.

Artists. The sensation of the year was the appearance of an 11-year-old violin prodigy, Yehudi Menuhin, playing the colossal Beethoven concerto at a concert of the New York Symphony Society, under Fritz Busch (November 25). Since the War, when New York became the arena of débutants, there had appeared so many prodigies that the appearance of one more attracted little attention, especially since almost invariably the only marvelous thing about those children was a precocious and, in most cases, really extraordinary, exhibition of technical skill; and the programmes offered on those occasions very wisely were made with this object in view. Thus it can be explained that young Menuhin's New York début on Jan. 17, 1926, passed practically unnoticed, for his programme consisted exclusively of pieces demanding a brilliant technic. In the autumn of 1927, however, reports came of two concerts given by Menuhin in Paris, which acclaimed him a violinistic genius of the first magnitude. His rendition of the Beethoven concerto with the Symphony Society proved beyond peradventure that the French critics had not exaggerated. Although the boy played only a three-quarter violin (Grancino, 1695), he produced a tone equally remarkable for power and beauty. His intonation was impeccable, even in double stops. Technical difficulties he surmounted with ease. But above all this, he took his place, irrespective of age, among the elect by virtue of superior musical intuition, depth of feeling and maturity of conception.

The next day after Menuhin's triumph Yelli d'Aranyi, a grand-niece of Joachim, made her American début in New York (November 26) with more than ordinary success. She is a violinist of the grand style, with splendid technical equipment and reverence for the composer's intentions. In subsequent concerts she also proved herself an ensemble player of the first rank.

Among the more important of the violinists who were heard during the year were Flesch, Feuermann, Kerekjarto, Kochanski, Kortschak, Kreisler, Szigeti, Spalding, Cecilia Hansen, Kathleen Parlow, and Renée Chemet.

A host of new pianists made their début during the year. Those that made a deeper impression were the Austrian Robert Goldsand (New York, February 28), the Dutchman Paul Roes (New York, March 1), and the Spaniard José Echaniz (New York, October 16). The very favorable reception accorded the Hungarian Bela Bartők at his American début (December 22), when he played his own Rhapsody, op. 1, with the New York Philharmonic Orchestra, under Mengelberg, was a tribute to the composer, rather than to the pianist. The work itself is far less "advanced" than his later ones, and, perhaps for that very reason, more beautiful, while the skillful development of the thematic material and splendid orchestration enhance the total effect. In certain passages the music even attains the level of the sublime. To do full justice to this composition the pianist must have at his command an infinite variety of tonal shading and, above all, a warm, singing tone. Bartők's technic is ample, facile and very clear, but his tone is cold, lacking in subtle differentiation of color.

Another European composer, Alexander Tansman, an extreme futurist, made his American début as a pianist with the Boston Symphony Orchestra (December 29), playing his new second concerto for piano and orchestra. The work, in three movements, seemed devoid of any recognizable themes, utterly planless and disjointed. Excessively heavy orchestration, especially of the first movement, frequently drowned the piano, and when the solo instrument could be heard, there was such a bewildering succession and combination of sounds as to render any critical appraisal of the pianist's ability impossible.

Of the great pianists Katharine Bacon was the only one who observed the Beethoven centenary by playing all 38 piano sonatas in a series of seven recitals (New York, January 24–March 7), while the others contented themselves with including in their programmes only the immortal masterpieces. After his resignation as conductor of the St. Louis Symphony Orchestra Rudolph Ganz once more delighted his numerous admirers by his masterly piano playing. The outstanding pianists of the year were Brailowsky, Casella, Cortot, Dohnányi, Friedmann, Gabrilowitsch, Gieseking, Grainger, Hess, Hilsberg, Horszowsky, Hutcheson, Hofmann, Kreutzer, Leginska, Levitzki, Lhevinne, Merő, Moisseiwitsch, Münz, Novaes, Rachmaninov, Rosenthal, Samuel, Scharrer, Schnitzer.

While but few lines have always sufficed to record the activities of the cellists, the record of 1927 is even briefer than usual. Not a single new artist appeared, and the most important event was the reappearance, after several years' absence, of the famous English cellist Beatrice Harrison at a concert of the Philadelphia Orchestra, under Fritz Reiner (October 28), when she introduced a new cello concerto by Delius. It was a pity that the interpreter's rare art was wasted on such a dull work. Mention of the names of Casals, Durieux, Shuk and Willeke completes the list for the year.

It is a well established fact, that during the last decade the noble cello has steadily been losing ground as a solo instrument. Two principal causes have contributed to this decline: The higher musical intelligence of the present-day audience and the dearth of a significant cello literature, especially of works in the larger forms. Twenty years ago the chief interest of an audience at a symphony concert was centred in the personality and technical skill of the solo artist. The merit of the composition itself was a matter of secondary consideration. Gradually, with increasing musical culture, the interest shifted from the soloist to the music of the composer, so that a solo performer is no longer a necessary factor in the scheme of symphonic programmes. In fact, a symphony concert presenting a soloist is the exception, and even then the composition offered is examined rather critically as to its intrinsic musical worth. Thus, with the opportunities for solo appearances greatly reduced, the cellist, because of the limitations of his repertory, is at a decided disadvantage as compared with the violinist or pianist. These latter artists have the choice of an extensive repertory of great concertos by the greatest masters—Bach, Beethoven, Brahms, Mendelssohn, Schumann, Liszt, Saint-Saëns, Tchaikovsky, Grieg, Franck, Rachmaninov—while the cello concertos of Schumann, Dvořák, Reinecke, Elgar and the latest addition by Delius must be classed among the inferior works of these composers. And withal, there is no lack of really great cellists, but they are found among the personnel of the great chamber-music organizations. Rather than waste their art selfishly as soloists playing pretty trifles or dull concertos, they prefer the coöperation of fellow artists proclaiming the glories of the masterpieces of chamber-music.

In Boston Sergei Kussevitsky gave a concert for the benefit of needy students in Russia, Palestine and the United States (September 24). The main interest centred in the first appearance in the United States of the famous conductor as solo virtuoso on the double-bass, playing his own concerto in A minor with a virtuosity that elicited frantic applause. Before winning distinction as a conductor (1907) Kussevitsky on his tours of Europe had established his reputation as the greatest living master of the double bass.

Another of the great French masters of the organ, Louis Vierne, organist of Notre Dame at Paris, created a profound impression on the occasion of his American début at the magnificent organ at Wanamaker's in Philadelphia (February 9).

After more than half a century crowded with triumphs Ernestine Schumann-Heink made her farewell tour of the United States, giving her closing recital in New York (December 10) amid scenes of indescribable enthusiasm. After the last of innumerable encores Walter Damrosch appeared upon the stage and presented to the artist a portfolio containing 48 personal letters of appreciation, one from every governor in the Union.

In commemoration of the 50th anniversary of her début Marcella Sembrich was the guest of honor at a grand dinner arranged by the Bohemians of New York (December 18). Although she retired from the operatic stage in 1909, and has appeared on the concert stage but rarely since then, she was in 1927 one of the dominating personalities in the world of music because of her activity as one of the greatest of singing teachers.

After her somewhat sensational retirement in 1922, Geraldine Farrar made a tour of the principal cities of the United States, beginning in Chicago (November 20). Everywhere she was greeted with unbounded enthusiasm, for her fascinating personality had lost none of its charm, while the long rest has been decidedly beneficial to her voice, which had a rich quality even in the highest register.

Two newcomers were heartily welcomed at their American début as masterly interpreters of the German lied: Johanna Klemperer (January 26), a soprano and wife of the eminent German conductor, and Max Kaplick, a baritone (February 23).

Chamber-Music. Throughout the year the majority of the organizations gave prominence to the works of Beethoven, several, and among them the London String Quartet, performing all the quartets in a series of six concerts. Less interesting was a series of three concerts, in which Harold Bauer, assisted by Zimbalist, Kochansky and Spalding, played all the violin sonatas.

In December the Verbrugghen String Quartet celebrated its silver jubilee by repeating the identical programme played at the initial concert in Edinburgh. The organization during all the years of its existence had made only one change in its personnel, in 1918, when J. Cullen replaced the original second violin. D. E. Nichols (viola) and J. Messeas (cello) followed Mr. Verbrugghen in 1915 to Sydney, Australia, and in 1918 to the United States.

The International Composers' Guild, founded in 1921 by Edgar Varese, was disbanded. In an open letter to the press the founder stated that the objective of the society had been realized, since the public was converted to futurism and futuristic works were securely established in the repertory of the great orchestras. The League of Composers and Pro Musica, however, did not seem to take this optimistic view, for they continued their work of propaganda with unabated vigor. In Philadelphia the Society for Contemporary Music, pursuing the same object as the New York futurists, began its career with the first concert on February 28. In San Francisco Henry Cowell, one of the extreme futurists, founded the New Music Society, which gave its first concert on October 25 to a bewildered audience.

Choral Societies. The first complete performance of Bach's Mass in B minor ever heard in New York was given by the Oratorio Society under Albert Stoessel (April 21). The only reason why the great work had never been produced in New York in its entirety is its length, which far exceeds the limits of the ordinary concert. On this occasion the plan adopted at the Bethlehem Festival of giving the Mass in two parts, with a long intermission, invested the concert with the atmosphere of a festival. The work had been rehearsed from the early fall and the performance was well nigh flawless.

For the first time since 1893 Cleveland held a Sängerfest on a large scale (June 22–24). The combined orchestras of the Cleveland and Detroit Symphony Orchestras, under the direction of Bruno Walter, constituted the festival orchestra, while the festival chorus numbered 4000 voices and was conducted alternately by Arthur Messer, Rudolf Schuller, Karl Reckzeh and Hugo Anschütz.

The Florentine Polyphonic Choir (mixed voices), under the direction of Sandro Benelli, at their American début (New York, October 11) made a deep impression in a programme of a cappella music ranging from Palestrina to composers of the present day.

Of special interest was the programme rendered by the Society of the Friends of Music on December 18, when New York heard the first performance of Purcell's opera *Dido and Æneas* in concert form. Even without scenic accessories the inherent power of the music roused the audience to prolonged demonstrations of approval. The soloists, chorus and orchestra, under the direction of Artur Bodanzky, belonged to the personnel of the Metropolitan Opera House.

During the interregnum following the resignation of Kurt Schindler, in 1926, the Schola Cantorum, of New York, gave its concerts under the direction of Margarete Dessoff as guest-conductor, who had the distinction of being the only woman that ever conducted a choral society in New York. In the fall the organization resumed its concerts under the direction of its new permanent conductor, Hugh Ross.

Festivals. The 28th biennial Cincinnati May Festival (May 3–5) was held under the direction of Frank Van der Stucken. A splendid performance of the *Missa Solemnis* was given in honor of the Beethoven centenary. The fourth concert (May 4) was devoted entirely to works of Bach, and on this occasion a secular cantata, *Æolus Appeased,* had its first American performance. The orchestral numbers were played by the Cincinnati Symphony Orchestra under Frederick Stock as guest-conductor.

The 7th annual Harrisburg Festival was conducted by Ward Stephens (May 10–12). From very modest beginnings the programmes have steadily presented more ambitious works, until this year creditable performances were achieved of Verdi's *Requiem* and Saint-Saëns' *Samson et Dalilah.* As the financial condition of the treasury did not permit the engagement of an orchestra, the instrumental accompaniment was played on the organ by H. R. Shelley.

The 21st annual Bethlehem Bach Festival was held under the direction of Dr. F. J. Wolle (May 13, 14). The programme of the first day consisted of six Motets, while the second day, as customary, was devoted to the Mass in B minor, in the performance of which a somewhat daring innovation might have been made the subject of adverse criticism, if the perfection of the execution and the resultant tremendous effect had not silenced all objections. Dr. Wolle had dispensed with the services of soloists and had all the solo passages executed in unison by the respective sections of the chorus. Virtuoso orchestras have come to be taken almost as a matter of course, but a virtuoso chorus mastering difficulties assigned to highly trained soloists is something new even in this age of musical innovation.

The 34th annual Ann Arbor Festival took place under the direction of Earl V. Moore, with the assistance of the Chicago Symphony Orchestra under Frederick Stock (May 18–21). A superb performance of the *Missa Solemnis,* at the second concert, marked the organization's observance of the Beethoven centenary. A novelty was Howard Hanson's *Heroic Elegy,* written especially for the festival in honor of the Beethoven centenary, and conducted by the composer. Whether this *Heroic Elegy,* a typically futuristic work, can be considered a fitting tribute to the composer of the *Heroic Symphony* is a question that not everybody will answer in the affirmative.

The 19th annual North Shore Festival was held at Evanston (May 23–28) under the direction of Peter Lutkin, with the assistance of the Chicago Symphony Orchestra under Frederick Stock. The splendid playing of the latter organization was practically the only satisfactory feature of the festival. In former years Mr. Lutkin's listless conducting of choral masses elicited much unfavorable comment, and there was no improvement in this respect. As a matter of fact, the attendance at all concerts was much below the average of other years.

At the 68th annual Worcester Festival, under Albert Stoessel (October 5–8), the work that aroused the greatest enthusiasm was a novelty, Honegger's *Le Roi David,* which had met a decidedly cool reception at earlier performances in New York and Boston.

The 31st annual Maine Festival (Portland, Bangor and Lewiston, October 2–10) was the last given under the direction of its founder and only conductor, William R. Chapman. His successor is Adelbert W. Sprague, while Mr. Chapman retains his connection with the organization as honorary conductor.

Orchestras. Every symphony orchestra throughout the country observed the Beethoven centenary. The most elaborate celebration was that arranged by the Boston Symphony Orchestra, which gave a Beethoven Festival lasting an entire week (March 22–29), devoting four concerts to the symphonies, two to the *Missa Solemnis* and one to chamber-music. The performance of the mass (March 22) was the first heard in Boston since the opening of Symphony Hall (1901). Needless to say that the execution of all the programmes reached the level of absolute perfection. The programmes for the rest of the year were made in accordance with a scheme that Mr. Kussevitsky seems to have adopted as a permanent one: One part is given over exclusively to the modernists, the other to works of the standard repertory. Two concerts (February 18, 19) were devoted entirely to works of Respighi, who appeared both as conductor and pianist. Alfredo Casella, who succeeded Agide Jacchia, conducted the regular series of summer concerts, the famous "Pops."

The New York Philharmonic Orchestra played under its regular conductors, Wilhelm Furtwängler and Willem Mengelberg, and under three guest-conductors, Georges Georgesco (January 23), Fritz Reiner (January 25, 27, 30) and Arturo Toscanini (February 1, 6). The two concerts conducted by the latter were the sensation of the season. Both programmes contained only symphonies of Beethoven (3 and 5, 1 and 9). At the second concert the police were obliged to clear the streets of those unable to gain admission. Later on the society paid a further tribute to Beethoven with two more concerts (March 24, 25), under Furtwängler, when the great Fugue in B♭, for string-quartet, was performed with magnificent tonal effect by the entire string orchestra. With the assistance of the Choral Symphony Society three impressive performances, conducted also by Furtwängler, were given of Brahms' *German Requiem* (March 31, April 1, 3).

After 42 years of continuous service Walter Damrosch retired as conductor of the New York Symphony Orchestra, making his farewell appearance on April 10 with a superb rendition of Beethoven's Ninth Symphony. But before that date a signal honor was paid to him, when his own orchestra joined forces with the Philharmonic Orchestra in a testimonial concert at the Metropolitan Opera House (March 25). The conductors of this imposing body of 250 artists were Mr. Damrosch himself, Fritz Busch and Wilhelm Furtwängler. Fritz Busch, of Dresden, at his American début with the Symphony Orchestra (March 13) at once was recognized as a conductor of the first rank. He also conducted the concerts from the opening of the fall season until the end of the year. Michael Gusikov succeeded Mischa Mischakov as concert-master, and Josef Emmonts replaced Josef Malkin as first cellist.

During the absence of Leopold Stokowski the concerts of the Philadelphia Symphony Orchestra, from October to the end of the year, were conducted by Fritz Reiner, of Cincinnati, who, in turn, was temporarily replaced by Victor de Sabata.

Differences between the Musical Union and the board of directors of the Chicago Symphony Orchestra once more precipitated a crisis. The Union demanded an increase of the minimum wage of $80 a week to $100. When, after prolonged discussion, no agreement could be reached, the orchestra was actually disbanded. This unexpected action induced several music-lovers to raise a special fund to pay the difference between the old and the new schedules in time to reassemble the players for the opening of the fall season.

Because of the precarious financial condition of the St. Louis Symphony Orchestra Rudolf Ganz resigned as conductor and resumed his career as concert pianist. However, a sufficient amount was subscribed to enable the organization to resume its activities in the fall under Emil Oberhoffer as guest-conductor.

After the sudden death of Walter Rothwell (March 13), conductor of the Los Angeles Philharmonic Orchestra, the season was completed by Emil Oberhoffer. In the fall Georg Schneevoigt, the famous Finnish conductor, entered upon his new duties as permanent conductor.

William F. Hoffmann, the concert-master of the People's Symphony Orchestra, of Boston, was elected conductor, succeeding Emil Mollenhauer, who died December 10.

The Minneapolis Symphony Orchestra, under Henri Verbrugghen, celebrated the 25th anniversary of its foundation (November 4) by repeating the program of the initial concert in the presence of its founder, Emil Oberhoffer, and its first soloist, Marcella Sembrich, whose selections on this occasion were rendered by her pupil, Dusolina Giannini.

The 10th season of the Stadium Concerts, New York (July 6–Aug. 30), under Van Hoogstraten, Stock and Monteux, was the most successful in their history, the record attendance of 250,000 (1925) being exceeded by 50,000. Equally favorable were the reports regarding the sixth season of the summer symphony concerts at the Hollywood, Cal., Bowl (July 5–August 27) and the second season of the Summer Symphony Association of San Francisco (July 7–August 28). Taking advantage of their geographical proximity, these two latter organizations adopted the system of exchanging conductors, so that the audiences were able to appreciate Hertz, Walter, Van Hoogstraten, Goossens, Gabrilowitsch, Monteux, Sokolov and Shavitch.

Of new orchestras that began their career during the year by far the most important was the Beethoven Symphony Orchestra (100 performers), of New York, under Georges Zaslawsky, introducing itself in an all-Beethoven programme (February 22). The New Brunswick (N. J.) Symphony Orchestra of 80 players, under J. Earle Newton, gave its first concert on February 11.

NOVELTIES. The following list includes the more important new works heard during the year: Boston Symphony Orchestra, under Kussevitsky: J. Achron, Violin Concerto (Jan. 14); A. Roussel, Suite in F (Jan. 21); A. Copland, Piano Concerto (performed by composer, Jan. 28); O. Respighi, *Vetrate di Chiesa* (Feb. 25); F. Converse, *Flivver 10,000,000* (Apr. 15); A. Dukelsky, Suite from ballet *Zéphire et Flore* (Apr. 29); R. H. Sessions, Symphony No. 1 (Apr. 22); A. Honegger, Préludes to acts 2 and 3 and *Malédiction de Thesée* from incidental music to d'Annunzio's *Fedra* (Oct. 28); F. Malipiero, Suite *Cimarosiana* (Nov. 11); B. Martinu, *La Bagarre* (Nov. 18); A. Tansman, Piano Concerto No. 2 (played by composer, Dec. 29).—New York Philharmonic Orchestra, under Furtwängler; A. Miaskovsky, Symphony No. 7 (Feb. 17); J. Sibelius, *The Tempest*, overture (Feb. 24); Beethoven, *Leonore No. 2*, new version of the overture recently discovered (Mar. 4); W. Braunfels, *Don Juan*, symphonic poem (Mar. 17); under Mengelberg: A. Ferroud, *Foules* (Oct. 13); E. Bloch, Symphony in C minor (Oct. 20): Bartók, *Rhapsody* for piano and orchestra (Dec. 22); E. Schelling, *Marocco*, symphonic poem (Dec. 22).—New York Symphony Orchestra, under Busch: Y. Merö, *Capriccio ongarese* for piano and orchestra (played by composer, Nov. 3); A. Busch, Symphony in D minor (Nov. 25); V. Dubensky, Symphony (Dec. 29).—Philadelphia Symphony Orchestra, under Stokowski: J. Carillo, *Concertino* in quarter, eighth and sixteenth tones (Mar. 4); S. Rachmaninov, Piano Concerto No. 4, G minor (played by composer, Mar. 18); B. Kontzen, *Solitude*, poème-nocturne (Apr. 1); E. Varese, *Arcanes* (Apr. 8); under Busch: F. Delius, Cello Concerto (played by Beatrice Harrison, Oct. 28).—Chicago Symphony Orchestra, under Stock: A. Oldberg, Symphony No. 3 (Mar. 18). —Baltimore Symphony Orchestra, under Strube: E. Schenck, *In a Withered Garden*, tone-poem (Dec. 11).—Syracuse Symphony Orchestra, under Shavitch: E. Fabini, *Las Islas de los Ceibos*, tone-poem (Apr. 16).

OPERA. At the Metropolitan Opera House in New York 198 performances were given from a repertory of 49 operas by 28 composers. According to nationality these were divided as follows: Italian, 23 works by 12 composers totaled 100 performances; German, 14 works by 6 composers totaled 55 performances; French, 8 works by 6 composers totaled 28 performances; American, 2 works (including 1 ballet) by 2 composers totaled 10 performances; 1 Bohemian opera (sung in German) and 1 Russian (sung in French) had 3 and 2 performances, respectively. Wagner, represented by 9 works, stood first with 32 performances. Next came Verdi, represented by 6 works and 28 performances. Third stood Puccini, represented by 6 works and 26 performances. Four operas were given only once.

The first novelty was Deems Taylor's *The King's Henchman* (February 7), under Serafin, with Easton, Johnson and Tibbett as principals. The book, by Edna St. Vincent Millay, is one of unusual excellence in respect to diction and dramatic construction, and was in no small measure responsible for the emphatic success of the opera. The music, entirely free from any modernistic influences, is always expressive, often truly emotional and in some telling climaxes rises to great heights. The work aroused genuine enthusiasm and had five repetitions.

Of the 12 operas by American composers produced in this opera house it was by far the best.

Alfredo Casella's ballet *La Giara* (March 19), under Serafin, with Galli, Berger, Bonfiglio and Angelo as principals, illustrated a silly plot with unintelligible futuristic music. Erich Korngold's *Violanta* (November 5), under Bodansky, with Jeritza, Kirchhoff and Whitehill, was seriously handicapped when it was given in a double bill with a masterpiece like *Hänsel und Gretel*. Nevertheless, as the work of a boy of 18 it is quite remarkable for excellence of workmanship and skill in orchestration. The thematic material, however, is hardly more than commonplace. The same composer's *Die Tote Stadt*, produced in 1921, marks a long step in advance over the earlier work.

Of the revivals of older works by far the most important was the production of Beethoven's *Fidelio* (January 22), under Bodanzky, with Larsen-Todsen, Laubenthal, Bohnen and Schorr, in honor of the Beethoven centenary. For this occasion Bodanzky had provided a new version by setting all the spoken dialogue to music, employing, of course, only the master's own material. The reverence and the skill with which he approached his task cannot be praised too highly. The performance itself was nothing less than superb. But all this will not change the status of *Fidelio* in the operatic repertory. From the very beginning, it was only the great name of its composer that compelled respectful attention for a work that never found its way into the affection of the public.

After an interval of almost 20 years Thomas' *Mignon* was revived (March 10), under Hasselmans, with Bori, Talley, Gigli and Whitehill, but sounded terribly old-fashioned, and left the audience apathetic. On the other hand, Bellini's *Norma* upon its revival after 31 years (November 16), under Serafin, with Ponselle, Telva, Lauri-Volpi and Pinza, created almost a sensation. The real truth is, that Ponselle was the sensation, and by no means Bellini.

Of the new artists it can be said that those who made their débuts in principal rôles were, without exception, singers and actors of the first rank. Walter Kirchhoff (as Loge in *Das Rheingold*, January 28), Grete Stückgold (as Eva in *Die Meistersinger*, November 2), Richard Mayr (as Pogner in *Die Meistersinger*, November 2), Philine Falco (as Curra in *La Forza del Destino*, November 4). Dorothee Manski (as the Witch in *Hänsel und Gretel*, November 5), Louise Lerch (as Gilda in *Rigoletto*, November 5). Frederick Jagel (as Rhadames in *Aida*, November 8), Everett Marshall (as the Herald in *Lohengrin*, November 12), Leonora Corona (as Leonora in *Il Trovatore*, November 24), Elena Rakovska (as Rachel in *La Juive*, December 23).

After the lovers of opera in Cleveland had secured the necessary guarantee fund, they contracted with the Metropolitan Opera House for a one-week season of opera for five years. The first of these short seasons was given in Cleveland from May 2–7, with a repertory of eight operas, to capacity houses. The receipts covered all expenses, leaving the guarantee fund intact.

The Chicago Civic Opera gave 100 performances of 40 operas by 27 composers. According to nationality these were distributed as follows: Italian, 22 works by 11 composers totaled 63 performances; German, 8 works by 6 composers totaled 17 performances; French, 8 works by 8 composers totaled 16 performances; Russian, 2 works by 2 composers were given each twice. The operas heard most frequently were *Traviata*, *Tosca and Bohème* (each 5 times), while not fewer than 12 operas had only one hearing. Only one novelty was introduced, Honegger's *Judith* (January 27), under Polacco, with Garden, Loring, Formichi and Cotreuil. The audience evidently was not far enough advanced to appreciate a typical futuristic opera written in the polytonal style, for the work disappeared after a single rendition.

After the close of the regular Chicago season the company gave about 50 performances on a tour embracing 17 cities, the longest stay being at Boston (16 performances). Among the new singers three scored unusual success at their débuts: Leone Kruse, as Elisabeth, and Heinrich Schlusnus, as Wolfram, in the same opera (*Tannhäuser*, November 4) and René Maison (in the title-rôle of *Faust*, December 21). The other newcomers were Maria Kurenko (as Rosina in *Il Barbiere di Siviglia*, January 25), John Sample (as Rhadames in *Aïda*, November 12), Robert Ringling (as Tonio in *Pagliacci*, November 17), Olga Kargau (as Nedda in *Pagliacci*, November 17), Kathryn Witwer (as Micaela in *Carmen*, December 9), Della Samoilov (as Santuzza in *Cavalleria Rusticana*, December 17).

The year marked the end of the five-year period covered by the guarantee fund raised in 1922, when the Chicago Civic Opera Company began its career (See YEAR BOOK, 1922). A detailed report issued by the directors showed that during these five years 252 performances had been given in the regular Chicago seasons from a repertory of 68 operas, that the attendance had risen from 233,571 to 271,192, and the receipts from $717,161 to $936,134. At the time of publication the new guarantee fund, covering the next five years, had not yet been completed, but the subscriptions already received exceeded the first fund.

The San Carlo Opera Company, established in 1910 by Fortune Gallo as a traveling organization, opened its 18th season in its own new home, the Gallo Theatre in New York, with a splendid performance of Puccini's *La Bohème* (November 7), and thus has taken its place as a permanent institution. Through its extended tours from coast to coast the organization has been a powerful factor in arousing wider interest in grand opera and, incidentally, has won for itself a solid reputation for the excellence of its general ensemble.

The Philadelphia Civic Opera Company showed remarkable enterprise, when it opened its second season (December 1) by giving the American première of Richard Strauss' *Feuersnot*, under Alexander Smallens, with Helen Stanley, Marcel Salzinger and Sigurd Nilssen as principals. On the same night Gluck's *Maienkönigin* (1755) also had its American première.

In Seattle Karl Krueger, conductor of the local symphony orchestra, organized a Society for Opéra Intime, which gave the American première of Erich Korngold's ballet *Der Schneemann* (May 13).

Another American première to be recorded was that of Händel's *Julius Caesar*, at Smith College, Northampton, Mass. (May 19), all the principals, the entire chorus and orchestra being either members of the faculty or students of the music department.

For a fourth short season of opera the Los Angeles Civic Opera Company and the San Francisco Opera Company joined forces (Sept. 12–Oct. 17), as in the preceding year. While the orchestra was selected from the players of the respective symphony orchestras, the majority of the singers were artists of the Metropolitan and Chicago companies. The outstanding event of the season was a splendid performance of *Tristan und Isolde,* with Elsa Aleen and Rudolf Laubenthal in the title rôles, under the direction of Karl Rieder (Oct. 4).

Bibliography.—References H. Abert, *Illustriertes Musiklexikon* (Berlin), brief, complete and accurate. Grove's *Dictionary of Music and Musicians,* third revised edition, edited by H. C. Colles (London), 4 volumes issued [A-Sonatina] largely rewritten and brought down to date; a cosmopolitan point of view has replaced the rather limited British perspective of the earlier editions; many new names among the contributors. J. Pulver, *A Biographical Dictionary of Old English Music* (London), scholarly, comprehensive and very valuable for information about performers, publishers and makers of musical instruments during the 17th and 18th centuries. G. Saleski, *Famous Musicians of a Wandering Race* (New York), 425 authentic sketches of famous Jewish composers and performers.

Biography: H. Grace, *Ludwig van Beethoven* (London), follows Thayer as to facts and does not attempt to portray the master as a superman above all human frailties; much space given to careful and unbiased appraisal of works. E. Newman, *The Unconscious Beethoven* (London), a psychological study of the man, overemphasizing faults and weaknesses; too many suppositions and inferences not substantiated by proofs. G. E. Abraham, *Borodin: The Man and His Music* (London), the best biography in English. W. C. Sayers, *Samuel Taylor-Coleridge, Musician: His Life and Letters* (London), a revised and enlarged edition of a work published in 1915. A. Tessier, *Couperin* (Paris), valuable for critical analysis, complete catalogue of works and extensive bibliography. C. Koechlin, *Gabriel Fauré* (Paris), uncritical, vastly overrates the composer's importance. P. de Stoecklin, *Grieg* (Paris), appreciative and impartial. G. de Pourtalès, *La vie de Franz Liszt* (Paris), brings nothing new, but treats the subject with sympathetic insight. K. von Wolfert, *Mussorgsky* (Berlin), very complete as to biographical facts and sources, but rather brief in discussion of works. U. Prota-Giurleo, *Nicola Logroscino, il dio dell' opera buffa* (Naples) valuable as result of study of original documents, corrects a number of long accepted errors. D. Arundel, *Henry Purcell* (Oxford), sane and scholarly. H. Dupré, *Purcell* (Paris), enthusiastic, but critical. U. Prota-Giurleo, *Alessandro Scarlatti, il palermitano* (Naples), corrects errors on basis of original documents. E. Schumann, *The Schumanns and Brahms: Memoirs* (New York, translated by Marie Busch, interesting because of the eminent position of the artist, the chapter dealing with Brahms' ideas of interpretation of special value. F. Chaliapin, *Pages de ma vie* (Paris), a very frank story of early privations and struggles. L. Slezak, *Meine sämmtlichen Werke* (Berlin), a most amusing book of reminiscences. R. Stein, *Tchaikovsky* (Stuttgart), undertakes to explain the works as direct expression of personal experiences. C. Russell, *The American Orchestra and Theodore Thomas* (New York); chiefly a biography touching upon the orchestral situation only in relation to the work of Thomas. P. Warlock, *Thomas Wythorn, An Unknown Elizabethan Composer* (Oxford), a valuable contribution to the history of the period.

History. F. Densmore, *The American Indians and their Music* (New York), valuable for information regarding their domestic life, gives many aboriginal melodies. H. Engel, *Die Entwicklung des deutschen Klavierkonzerts von Mozart bis Liszt* (Leipzig), comprehensive and authoritative. F. Gillman, *The Evolution of the English Hymn* (London), a popular, readable presentation. L. Nalder, *The Modern Pianoforte* (London), very thorough and lucid in description of mechanical details. C. Pearce, *The Evolution of the Pedal Organ and Matters Connected Therewith* (London), a brief account of the progress of organ-building in England. J. Prod'homme, *Beethoven, raconté par ceux qui l'ont vu* (Paris), an interesting collection of estimates by contemporaries. E. Rabich, *Die Entwicklung der Oper* (Langensalza), a strictly historical account written in attractive style. T. Reinach, *La musique grecque* (Paris), an authoritative treatise with numerous examples in notation. O. Sonneck, *Beethoven: Impressions of Contemporaries* (New York), a copious collection covering the composer's life from 1786 till his death. O. Sonneck, *The Riddle of the Immortal Beloved* (New York), very important in bringing out facts about Beethoven that suggest the possibility of two love affairs. E. Wellesz, *Byzantinische Musik* (Breslau), a valuable summary of the theories advanced by recent investigators. R. Wilhelm, *Chinesische Musik* (Frankfort), an historical investigation.

Criticism, Æsthetics. W. Bardas, *Zur Psychologie der Klaviertechnik* (Berlin). H. Berl, *Das Judentum in der Musik* (Stuttgart,) a sensational attempt to brand the music of Jewish composers as antagonistic to, and incompatible with, Western European music. O. Goguel, *Sterbende Kultur. Der Niedergang der deutschen Tonkunst* (Freiburg), regards modernistic music as hopeless decadence of art. A. E. Hull, *Music: Classical, Romantic and Modern* (London), a presentation of the evolution of musical styles, with strongly marked bias toward modernism. A. B. Klein, *Color-Music: The Art of Light* (London), regards the combination as nothing more than an æsthetic experiment without practical value. K. Kobald, *Beethoven; Seine Beziehungen zu Wiens Kunst and Kultur* (Vienna), a splendid tribute to the master's dominating personality. M. Koch, *Wagners geschichtliche volkische Sendung* (Langensalza), in commemoration of the semi-centenary of the Bayreuth Festival. J. G. Prod'homme, *La Jeunesse de Beethoven* (Paris), a critical study of the life and works of the period from 1770–1800, with complete thematic catalogue. J. W. Sullivan, *Beethoven: His Spiritual Development* (New York), an entirely subjective study attempting to place inferior compositions on the same level with the masterpieces. L. Vallas, *Les idées de Claude Debussy, musicien français* (Paris), interesting for the composer's very personal, and often eccentric, estimates of other composers. W. Wallace, *Liszt, Wagner and the Princess* (London), revives and exaggerates old scandals for the purpose of belittling the artistic stature of the composers. M. Auer, *Bruckner als Kirchenmusiker* (Ratisbon), the estimate of a panegyrist. H. Mersmann, *Angewandte Musikästhetik* (Berlin). J. Wirth, *Julius Stockhausen, der Sänger des deutschen Liedes* (Frankfort), a tribute by his daughter for the centenary of his birth, entirely objective and impartial.

Theory. J. H. Arnold, *Plain Song Accompaniment* (Oxford), an excellent treatise with numerous examples harmonized. H. Beauchamp, *Méthode élémentaire d'accompagnement du plain chant* (Rouen), concise and practical. A. Haba, *Neue Harmonielehre des diatonischen, chromatischen, viertel-, drittel-, sechstel- und zwölftel-Tonsystems* (Leipzig), a purely speculative exposition of non-existing systems without practical application. C. H. Kitson, *Counterpoint for Beginners* (Oxford), a lucid exposition of fundamental principles applied in 3 part counterpoint. C. H. Kitson, *Elementary Harmony* (Oxford), excludes consideration of modernist combinations. C. Koechlin, *Précis des règles du contrepoint* (Paris), a summary rather than an explanation of principles.

Correspondence. O. Sonneck, *Beethoven's Letters in America* (New York), reproduction in facsimile of 35 letters now owned by Americans, with translation and detailed commentary; many never published before. R. Du Moulin-Eckart, *Hans von Bülow: Neue Briefe* (Munich). J. Durand, *Lettres de Claude Debussy à son éditeur* (Paris), cover the period from 1902–17, very valuable for information regarding unfinished works. B. Litzmann, *Clara Schumann-Johannes Brahms: Briefe* (Leipzig), cover period from 1853–96; throw new light on personal relations and contain interesting comments on contemporary musicians and musical events.

MUSSOLINI, Benito. See Italy, *History*.

MUTTON. See Livestock.

MYOPIA. The enormous importance of myopia from the industrial and social viewpoints seldom receives adequate consideration because of the fact that it is largely remediable by wearing minus glasses. Dr. Poos of the eye clinic of Professor von Szily of the University of Münster considers the problem for Germany, a country where it is popularly believed to be unusually in evidence. (*Klinische Wochenschrift*, Aug. 27, 1927.) There are two types of short sight, one due to abnormal length of the anteroposterior axis of the eyeball and the other, less common, to anomalies of the refracting media. But few individuals are born with short sight, so that myopia must be regarded as an acquired disease; but attempts to learn enough of the causes to prevent its appearance have mostly failed. A hereditary factor is often present, and if this is the chief causal factor the fatalist attitude towards the affection must then be that it is beyond prevention by practicable means. So-called close work can never of itself cause myopia but can aggravate it; nevertheless progressive myopia has often been seen in families of laborers who have never learned reading or writing. It is of interest to note that of 25 apes examined, 4 were found to be myopic. If myopia were not so often progressive and extreme we could be content to look on these eyes as mere biological variations from the normal, but, as stated, it partakes of many attributes of actual disease.

In the Paris letter to the *Journal of the American Medical Association* for March 26 some statistics of myopia are given illustrative of its increased incidence with age up to a certain period. Thus while in the primary grades it involves less than 7 per cent of the pupils the figure for intermediate grades is about 10 per cent, for high schools up to 26 per cent and for universities nearly 60 per cent. The only preventive measures in use or inculcated are the erect posture while studying and a minimum focal distance of 33 cm. for both reading and writing with of course satisfactory illumination.

MYRICK, Herbert. An American publisher and editor, died at Bad Nauheim, Germany, on July 6. He was born on Aug. 20, 1860, at Arlington, Mass., and educated at Boston University. He also obtained the degree B.S. at the Massachusetts Agricultural College. For many years he was president of the Phelps Publishing Company and editor-in-chief of its weekly *New England Homestead,* Springfield, Mass. He published *Good Housekeeping,* 1900–11. He was publisher and editor of *American Agriculturist* (New York); *Orange Judd Farmer* (Chicago) 1888–1920. He founded in 1910 a school of agriculture, domestic science, and manual training at Springfield, Mass. He developed the metallic system for drawing fibre of cotton. He was one of the original advocates of coöperative dairying, tariff on farm products, experimental stations, coöperative buying and selling by farmers, the Federal farm loan act, and various other movements in behalf of education and agriculture. His periodical *Farm and Home* was the first in the world to provide a general radiophone service to its subscribers throughout the United States in 1921. His published works include: *The Federal Farm Loan System* (1916); *Rural Credits System* (1922); *Making a Boy into a Citizen* (1926).

NABOKOFF, Constantine. Russian diplomat, died in London, England, March 18. He was born in St. Petersburg in 1874. At an early age he entered the diplomatic service and for many years he filled various posts in the Ministry of Foreign Affairs in St. Petersburg. Following a short term of service in Brussels he went to the United States and served on the Russian delegation during the peace negotiations with Japan leading to the Peace of Portsmouth in 1905. He remained in the embassy at Washington D. C., until his appointment as consul-general in India in 1911. Just before the World War he was transferred to London where he did admirable work, particularly after the death of Count Benckendorff. Neither the imperial nor the provisional governments of Russia appointed a successor to Benckendorff and for two critical years Mr. Nabokoff was in charge of the embassy in London. This experience he vividly described in his book *The Ordeal of a Diplomat* (1921). He retired from the diplomatic service in 1919. In addition to writing his memoirs he translated the memoirs of General Denikin and General Lukomsky. Nabokoff and his family suffered from the Bolshevists, yet he always refrained from abusing them. As he had no private means he earned a living lecturing in England during the last years of his life. In 1926 Cambridge University conferred on him the honorary degree of Master of Arts.

NATAL, nȧ-tăl′. An original province of the Union of South Africa. See South Africa, Union of.

NATIONAL ACADEMY OF DESIGN. See Art Exhibitions.

NATIONAL ACADEMY OF SCIENCES. A body of American scientists incorporated by Act of Congress approved by President Lincoln in 1863, for the purpose of investigating, examining, experimenting, and reporting upon any subject of science or art, when called upon by any department of the government, the actual expense of such investigations, examinations, experiments, and reports, to be paid from appriations made for the purpose without compensation for any services to the government. The membership is limited to 250 active members and 50 foreign associates. New members are elected by the Academy on nominations from its 10 sections: mathematics, astronomy, physics, engineering, chemistry, geology and palæontology, botany, zoology and anatomy, physiology and pathology, anthropology and psychology. Fifteen new members and three foreign associates were elected in 1927, as follows: Members, E. T. Bell, C. P. Berkey, William Bowie, A. H. Compton, B. M. Duggar, Thomas A. Edison, R. A. Emerson, H. M. Evans, W. K. Gregory, C. S. Hudson, A. N. Richards, E. P. Hubble, Peyton Rous, Albert Sauveur and H. V. P. Wilson; Foreign Associates, Paul Sabatier, Godfrey H. Hardy, and Carl Stumpf. The Academy holds two meetings each year: the annual meeting, held in Washington beginning the fourth Monday in April; and the autumn meeting, held at a place and on dates decided upon by the Council of the Academy. The autumn 1927 meeting was held in October at Urbana, Illinois. These meetings are devoted to business and the presentation of scientific papers by Academicians or persons introduced by them.

The Academy has trust funds which grant money for the furtherance of research investigations, and other trust funds which provide for gold medals in recognition of outstanding scientific work. One medal was presented at the annual meeting in April, 1927: the Agassiz Medal for Oceanography, awarded to Max Weber, emeritus professor of zoölogy at the University of Amsterdam and director to the Siboga Expedition, in recognition of his distinguished research in the field of oceanography. The Academy publishes a series of Memoirs, consisting of monographs by Academicians and others, and reports of investigations conducted for the government; also *Biographical Memoirs* of the deceased members. *Proceedings*, issued monthly, is devoted to condensed reports of the most recent scientific discoveries. The officers in 1927 were: T. H. Morgan, president; Frederick E. Wright, vice president; R. A. Millikan, foreign secretary; David White, home secretary; George K. Burgess, treasurer. The headquarters are at B and 21st Streets, Washington, D. C.

NATIONAL BANKS. See Banks and Banking.

NATIONAL CIVIC FEDERATION, The. An American movement, organized in 1900, for the purpose of seeking the solution of some of the great problems related to social and industrial progress, providing especially for the discussion of questions of national import, aiding in the crystallization of the most enlightened public opinion, and promoting legislation when desirable. The Federation is directed by an executive committee composed of representatives of the public, of employers, and of wage-earners. Its activities are conducted through specialized departments and committees. It is essentially a patriotic institution, advocating proper and adequate military defense, and opposing superpacifist efforts against "all war," including defense of the country against invasion.

The Department of Industrial Relations seeks to reduce to a minimum the friction and misunderstanding which exist between employers and wage-earners, and to this end a national commission was appointed to study the following questions: The Sherman Anti-Trust Act; Government by Injunction; The "Yellow Dog" Contract; and The Company Union. The Department on Active Citizenship, with John Hays Hammond as Chairman, was made up of representative Republican and Democratic men and women, from various professional, patriotic, commercial, labor, farm, religious, and other civic bodies, who are endeavoring to induce citizens to participate actively in their respective party organizations and in the elections of their parties.

The Industrial Welfare Department was a movement to secure improvements in working and living conditions of wage-earners voluntarily by employers, and advocates a proposal for retirement annuities to provide against destitution in old age.

In April, 1927, the Department held a conference on old age pensions which was attended by representatives of corporations, and published a report which is of scientific value in helping to solve this problem. A joint committee, composed of members of the Industrial Welfare and Woman's Departments, was appointed to study housing conditions in army posts, to inform the public of the needs of officers and enlisted men. The Woman's Department made a survey of illiteracy among adults and completed a survey of almshouses in New York, Pennsylvania, New Jersey and Connecticut to aid in the problem of the care of the indigent aged. The Federation had a Department on Current Economics and a Committee on Free Speech, held a number of national conferences devoted to questions of foreign policy and immigration, and has sent various commissions to Europe to obtain information on the experience of foreign countries from which the United States might profit.

The Executive Council of the Federation for 1927 included the following: Elihu Root, honorary president; Matthew Woll, acting president; Samuel McRoberts, treasurer; D. L. Cease, secretary; Ralph M. Easley, chairman of the executive council; Miss Maude Wetmore, chairman, Woman's Department; Charles L. Edgar, chairman, Industrial Welfare Department; Condé B. Pallen, chairman, Department on Subversive Movements; Archibald E. Stevenson, chairman, Committee on Free Speech; John Hays Hammond, chairman Department of Active Citizenship; V. Everit Macy, chairman Department on Industrial Relations; Marcus M. Marks, chairman Industrial Round Table Department; Jeremiah W. Jenks, chairman Department on Current Economics; Gertrude Beeks Easley, secretary, executive council; Mrs. Coffin Van Rensselaer, executive secretary, Woman's Department; and Peter J. Brady, secretary Department of Political Education. The headquarters are in the Metropolitan Tower, East 23rd Street, New York.

NATIONAL DEFENSE. See Military Progress; Naval Progress.

NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES. An organization of persons actively engaged in educational work and others interested in education; organized at Philadelphia, Aug. 26, 1857, under the name of the National Teachers' Association, and on June 30, 1907, incorporated by Congress under its present name. In July, 1920, at the annual meeting, the Association was reorganized and provision was made for a Representative Assembly composed of delegates from State and local educational associations. The other governing bodies are: a board of directors; an executive committee of five; a board of trustees; departmental organizations; standing and special committees; and a staff at headquarters which is held responsible for carrying out the decisions of the governing bodies. There are 18 departments, each having its own officers, and more than 20 committees actively at work on professional problems. Two conventions are held annually. The summer meeting serves as a clearing house for educational ideas and reviews the progress of the year in education. At this time, in addition to the general sessions, meetings of the Representative Assembly, the departments of the Association, and a number of allied organizations are held. In 1927 this meeting was held at Seattle, Washington, July 3–8, with an estimated total attendance of more than 15,000. The 1928 Summer convention was to meet in Minneapolis the first week in July. The Department of Superintendence holds a winter convention the last week in February of each year. The 1927 meeting was in Dallas, Texas; that for 1928 was to be in Boston. This department was planning to complete in 1928 a four-year programme of coöperative research on the school curriculum in which more than 300 cities have taken part.

The chief objective of the Association is to secure from the American public a broader recognition of education, and, through a legislative programme, to provide for increased educational opportunities for American children. The Association stands for a Department of Education with a Secretary in the President's Cabinet; a competent well-trained teacher in every public school position in the United States; increased facilities for teacher training; continued investigation of educational problems as the basis for revised educational standards and methods; and active assistance to state and local affiliated associations in securing needed legislation and in promoting their interests.

The Association's monthly *Journal*, established in 1921, supports the policies and programmes of the Association, aims to reflect the activities of professional organizations, and gives special consideration to new movements in education of national and international interest. The Association also publishes an annual volume of *Proceedings* and numerous reports on its activities. *Research Bulletins* containing statistical information on educational subjects are issued regularly. The finances of the Association are embodied in two funds, the current and the permanent, the latter amounting to $290,072.31, on May 31, 1927, the receipts for the year ending on that date being $413,849.80. The enrollment at the end of 1927 was 180,000. The headquarters of the Association are maintained at 1201 Sixteenth Street, Northwest, Washington, D. C. Officers elected for 1927–28 were: President, Cornelia S. Adair, Richmond, Virginia; secretary, J. W. Crabtree, Washington; and treasurer, Henry Lester Smith, Indiana University, Bloomington, Indiana.

NATIONAL SAFETY COUNCIL. An international organization of 4433 members, companies and individuals, located in the United States and abroad, representing about 8000 workshops and 8,000,000 workers. Formed as a result of a safety congress held in Milwaukee in 1912 under the auspices of the Association of Iron and Steel Electrical Engineers, it functions for the prevention of accidents in factories, in the streets, air, schools and homes, as well as for the health, sanitation and general welfare of the public at large. The Council maintains an extensive safety service, issuing posters for bulletin boards, pamphlets describing safety devices, and three monthly periodicals: the *National Safety News; Public Safety;* and *Safety Education*, for teachers and school pupils. During 1927 more than 3,000,000 illustrated safety posters were distributed and 6500 new and original bulletins, relating to industrial accidents for the most part, were issued, in addition to a 700,000 copy circulation of the 1927 *Safety Calendar.*

The industrial membership of the Council is divided into 24 sections, such as automotive, cement, chemical, construction, electric railway, food, marine, metals, mining, packers and tanners, public utilities, quarry, rubber, steam railway, taxicab and fleet owners, and textile and woodworking. Affiliated with the National Council are about 60 local community safety councils, many of which issue their own bulletins and magazines, and are served by volunteer executive committeemen. The Council participated in the drawing up of more than 40 national safety codes, and carried on community safety surveys, made by engineering specialists, in addition to the numerous regional industrial and public safety conferences held during 1927. The 16th annual congress, which was held at Chicago, September 26–October 2, was attended by more than 6000 delegates and 75,000 witnessed the pageants of safety staged by the Council at Soldier Field after the annual convention. The education division, which is located in New York City and receives financial support from the National Bureau of Casualty & Surety Underwriters, has a trained staff of specialists who devote all their time to serving the schools of the nation, thousands of whom are now teaching accident prevention fundamentals to pupils in public, parochial, private, and high schools, universities and colleges. The Council received financial contributions from the Rockefeller Foundation and was endeavoring to obtain additional assistance for its public safety programme, in an effort to reduce materially the large number of accidental deaths reported annually.

Officers elected by the 1927 Safety Congress were: President, Homer E. Niesz; and the following vice presidents: for industrial safety, Ernest W. Beck; for public safety, Miller McClintock; for public relations, Charles J. Moore; for finance, C. E. Pettibone; for membership, Henry A. Reninger; for engineering, George E. Sanford; for education, Albert W. Whitney; for health, Prof. C.-E. A. Winslow; treasurer, G. T. Hellmuth; managing director, William H.

Cameron. The headquarters are at 108 East Ohio Street, Chicago, Illinois.

NAUMBERG, HIRSH DAVID. Polish journalist, died at Warsaw, November 21. Born in 1876 at Mscczonow, Poland, of Hasidic parentage he received the traditional Jewish education in the house of his grandfather. When a young man he became prominent in Jewish literary circles as a writer of fiction. He was a strong advocate of Yiddish as a national language of the Jews scattered throughout the eastern hemisphere, and he abandoned the writing of fiction to enter journalism in the furtherance of the cause. Many classical works were translated by him into Yiddish. He visited the United States in 1911 and in 1926.

NAVAL PROGRESS. The marked feature of the year's naval history was the failure of the new naval conference at Geneva for the limitation of naval armaments. Nor was much expected of it. No sooner was the Five Power Treaty completed at Washington than the various nations began to make the most of its provisions. No restriction was placed on the total tonnage of cruisers possessed by any nation but the maximum size of cruiser permitted was set at 10,000 tons and the calibre of her heaviest guns limited to 8 inches. Japan hastened work upon cruisers under construction, which carried only 6-inch guns, and laid down a new class armed with 8. In less than three years, all the five signatory powers except the United States had under construction cruisers of 10,000 tons, carrying 8-inch guns. Great Britain and Japan laid them down so rapidly that a new building race seemed to be on. It was to curb this that the United States proposed another conference but the field was extended to include destroyers and submarines.

Presuming that the views of the people of a country are mirrored with fair accuracy in its press, the prospect of achieving any valuable results in checking new construction of the vessels in question was doubtful. France and Italy declined to join in the conference. Great Britain and Japan took part but without enthusiasm. The proposals of the United States were simple and included restriction of the tonnage of cruisers, destroyers, and submarines as follows: (a) Limiting the tonnage of cruisers of the United States and Great Britain to 200,000–300,000 tons each, and of Japan to 150,000–180,000. (b) Limiting the tonnage of destroyers of the United States and Great Britain to 200,000–250,000 tons each, and of Japan to 120,000–150,000. (c) Limiting the tonnage of submarines of the United States and Great Britain to 60,000–90,000 tons, and of Japan to 36,000–54,000. The age limits, for the three classes of vessels, which they must reach before replacement is to be permitted, were placed at 20, 15, and 12 to 13 years respectively.

These proposals were apparently not objectionable to Japan but she desired a larger tonnage in each class than was afforded by the 5–3 ratio. Great Britain declined to accept the tonnage limitations and set a much higher figure for cruisers. Her delegates offered nine proposals, not one of which bore exactly upon the questions before the Conference. Three concerned battleships—their age, tonnage, and guns—all drawn so as to increase and prolong the present inferiority of the American fleet to that of Great Britain. Two concerned aircraft carriers, drawn with the same end in view. Three concerned the size, numbers, and guns of cruisers, drawn to support British plans for the effective use of her vast supply of high-speed merchant ships as cruisers in war and to curb the desire of the United States and Japan to build cruisers adapted to their requirements. Proposal No. 9 placed limits on the sizes of hulls and guns of destroyers and submarines—limits which Great Britain desired for such vessels in the navies of other nations and found unacceptable in her own.

These proposals were rejected by the United States and, so far as known, few were approved by Japan. The members of the British delegation were then recalled to London for consultation with the Cabinet. Upon their return they made new proposals, viz: A combined tonnage of cruisers, destroyers, and submarines: For the British Empire and the United States, 590,000; for Japan, 385,000. This included all vessels of less than replacement age. In addition, each nation might retain over-age vessels to a tonnage equal to one-fourth the foregoing allotments. Cruisers of Class A to be of 10,000 tons and carry guns of 8-inch or smaller calibre; cruisers of Class B to have a maximum displacement of 6000 tons and carry guns not exceeding 6 inches. The age limits for replacement were to be: cruisers of Class A, 18 years; Class B, 16 years; destroyers, 16 years; submarines, 13 years. Class A cruisers for the United States and the British Empire to be limited to 12 in number; for Japan, 8. Flotilla leaders to be of 1850 tons or less, and destroyers of 1500 tons or less; no gun to be carried by either in excess of 5-inch calibre; not more than 16 per cent of the total tonnage of these two classes to be composed of flotilla leaders (i.e. between 1500 and 1850 tons). Submarines to be divided into: Class A, 1000 to 1800 tons; Class B, 600 tons or less. The maximum tonnage of submarines for the British Empire and the United States to be 90,000; for Japan, 60,000. Not more than two-thirds of the allotted tonnage to be composed of Class A.

The new British proposals were objectionable to the American delegates on four main grounds: (1) that they restricted the liberty of the United States and Japan to apply their allotted tonnage to the construction of cruisers of such tonnage and guns (not to exceed 8 inches in calibre) as they saw fit (i.e. needed for their own naval purposes); (2) that they departed from the idea of limitation by categories of types; (3) that they imposed the 6-inch gun upon the United States and Japan as the main cruiser arm; and (4) that the low age limits of Class B cruisers would permit a total tonnage in that class of 500,000 to 550,000 in which the hitherto generally accepted replacement age for cruisers was not exceeded. This would constitute an enormous increase over all previous records and be in flat defiance of the purpose of the Conference which was to reduce and not increase expenditure.

The developments of navies of the world during 1927 and the condition of each at the end of the year are given in the following sections.

NAVIES OF THE WORLD IN 1927

ALBANIA. Although the naval force of Albania consists of a few small coast guard boats, a naval flag has been designed and adopted.

Argentina. The latest naval programme was approved by the Argentine parliament in 1926. It provides for three light cruisers to replace the *Veintecinco de Maio*, the *Nueve de Julio*, and the *Patria;* for six destroyers to replace four superannuated boats and four others ordered in Germany (order canceled); for the necessary river gunboats to replace the four old monitors *Andes*, *Plata*, *Libertad*, and *Independencia;* such auxiliaries as are necessary for the naval service; two groups of three submarines each; a submarine school, and the necessary shops for submarine repair; and to acquire radio, anti-aircraft guns, catapults, and other necessary naval material. The expense is to be spread over 10 years; 35 million pesos (1 peso = $0.424) in each of the first three years and 20 million in each subsequent year. Two cruisers of 6500 tons have been ordered in Italy. The dimensions are: length, 541.3 feet; beam, 58 feet. The engines are designed to develop 85,000 h.p. and give a speed of 32 knots; the fuel supply is 2000 tons. The armament will consist of 6 guns of 7.5 inches in pairs in three turrets on the midship line, two forward (the second raised sufficiently to fire over the first), and one aft; of 12 guns of 4.7 inches with high-angle fire; 6 1-pounders; and 6 55-cm. torpedo tubes. The complement is to be 600 officers and men. When launched, these cruisers will be named the *Almirante Brown* and the *Veintecinco de Maio.* Two flotilla leaders, the *Churruca* and the *Alcala Galiano,* of 1650 tons and 38 knots, had been purchased from the Spanish navy; and three others of 2350 tons and 35 knots had been ordered in England.

Australia. Five vessels of importance were under construction for the Australian navy in 1927. Two light cruisers of 10,000 tons, the *Canberra* and *Australia,* were being completed in England and should both be ready for service before the summer of 1928. These vessels are similar to the cruisers of the *Berwick* class of the British navy. At full load, with 3400 tons of fuel oil and several hundred tons of reserve feed water, they will have a displacement of nearly 14,000 tons. The machinery is designed for 80,000 h.p. and the expected speed is at least 31.5 knots. The main battery will consist of eight 8-inch guns. Two submarines, the *Otway* and the *Oxley,* of 1400 tons, were completed in 1927. They are similar in all essential respects to the *Oberon* class of the British navy. An aircraft carrier of 6000 tons, the *Albatross,* was under constuction at the Australian dockyard on Cockatoo Island. A floating dry dock of 15,000 tons capacity was under construction by the Government of New South Wales and was to be placed at Walsh Island, Newcastle. The Australian government was taking an increased interest n naval affairs and was likely to add other vessels to its fleet in the near future. Of the 262 officers on board Australian ships, in grades of and above that of sub-lieutenant, only 49 were from the British navy. Of these, 1 admiral, 6 captains, 11 commanders, 20 lieutenant-commanders, and 4 lieutenants were included in the line or executive branch.

Belgium. The Belgian government decided to abolish its naval department and returned to France the old cruiser which was lent for use as a naval school.

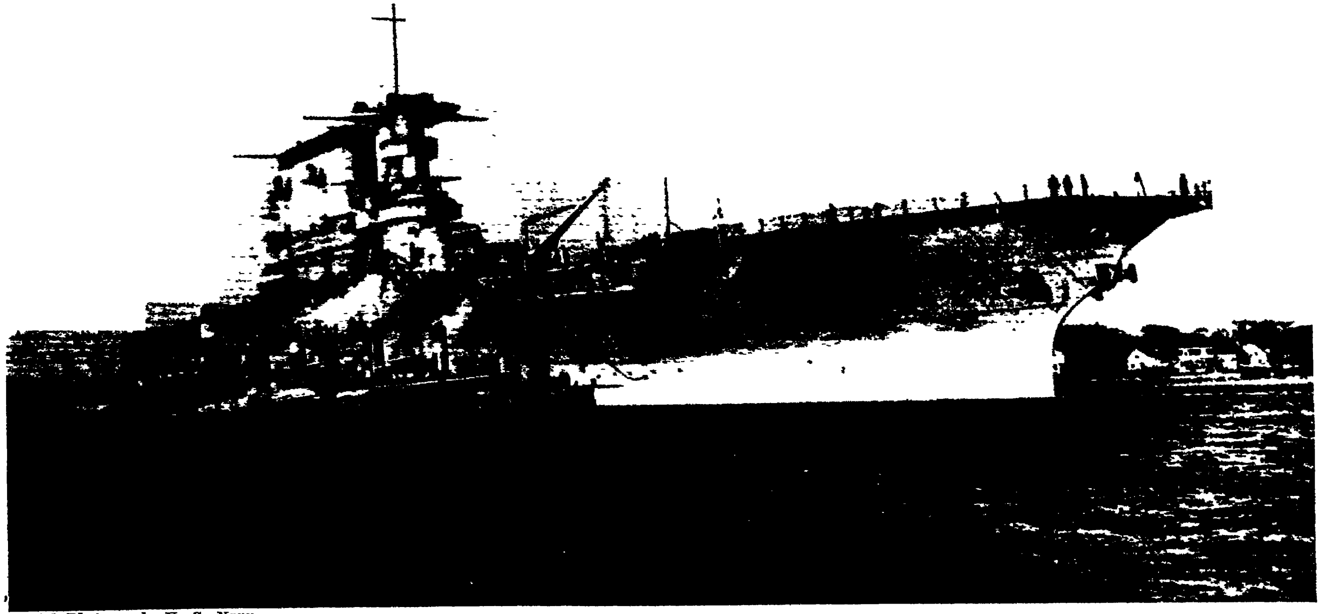
Brazil. The only new construction recently undertaken by the Brazilian navy consisted of a large submarine which had been ordered in Italy.

Chile. The six destroyers mentioned in *Naval Progress* for 1926 were ordered of Thorneycroft in England. The details are: Length over all, 300 feet; beam, 29 feet; depth, 18.25 feet; displacement, 1050 tons; designed speed, 35 knots; armament, 6 torpedo tubes, 3 4.7-inch guns, and some smaller pieces. It will be noted that these are smaller than any destroyers recently ordered by other nations, but they were said to be very strongly built and adapted to the rough weather often found off the Chilean coast. The construction of two light cruisers was reported to be under consideration by the Chilean naval authorities.

Denmark. The naval budget for 1928 is 21 million crowns, as opposed to 23,620,756 crowns (1 crown = 26.8 cents) for 1927. The only new construction in the Danish navy in recent years consisted of two submarines that were completed in 1927. Their approximate dimensions are: length, 161 feet; beam, 15 feet; surface draft, 9 feet. The horse power and speeds are 1000/650 and 14/9; and the armament consists of one 3-inch anti-aircraft gun and six torpedo tubes of 457 mm., four forward and two aft. Early in 1927 the government announced that it would submit a programme of new construction in the near future.

Finland. On account of its close proximity to Russia the Finnish government felt the necessity for acquiring an adequate naval force of special type. The project as developed involved two programmes, the building and costs of which are to be spread over 12 years. The first programme consists of two armored gunboats, three large submarines and one small one, four motor torpedo boats, and several minelayers and mine sweepers. The second programme consists of one armored gunboat, three large submarines, one or two small submarines, and four to six motor torpedo boats. The three large submarines of the first programme have been ordered in Holland and are to be completed in 1928, 1929, and 1930—one each year.

France. Notwithstanding the fact that, under the terms of the Five Power Pact of the Washington Conference, France can build two battleships of 35,000 tons, or any number or kind of capital ships of which the total tonnage does not exceed 70,000, the government had made no move to build such ships but had confined its attention to the production of light cruisers, flotilla leaders, destroyers, and submarines. The naval estimates for 1928 amounted to 2552 millions of francs (about $100,800,000 at the 1927 value of the franc), an increase of about $30,000,000 over that of 1927. The building programme for 1928 consisted of one light cruiser of 10,000 tons, six flotilla leaders of about 2700 tons, five large submarines, four coastal submarines of about 600 tons, one submarine minelayer, and two gunboats for foreign service. The enlisted personnel was fixed at 57,000. The officer personnel was set at 3822 as follows: 15 vice admirals, 30 rear admirals, 115 captains, 252 commanders, 360 lieutenant commanders, 800 lieutenants, 540 sub-lieutenants, 428 engineer officers of various ranks, 183 naval constructors and designing engineers, 135 ordnance engineers, 25 hydrographic engineers, 214



Official Photograph, U. S. Navy

U. S. S. "LEXINGTON"

AIRPLANE CARRIER, UNITED STATES NAVY

commissariat officers, 341 medical officers, 49 pharmacists, and 335 warrant officers.

About $8,000,000 was allotted for naval aviation, bringing the naval aviation force from 18 to 20 squadrons, and allowing for increases in land and buildings at aviation bases. This allotment was almost twice that of 1927 which was found to be quite inadequate. The modernizing of the six battleships of the two 23,000-ton classes was to be continued and was a heavy charge on the budget. The building of the new naval academy at Brest, after a long delay, was to be carried on vigorously, and completion is expected in 1932. The aircraft carrier *Béarn* was completed in 1927 and has passed into service. The speed was said to be unsatisfactory but reports indicated that the anticipated displacement of 21,450 tons had been considerably exceeded.

Of the 10,000-ton cruisers building, the *Duquesne* was practically completed; the *Tourville* was to be ready for service early in 1928; the *Suffren* was launched in May, 1927; and the *Colbert* was laid down in June. The cruiser-minelayer *Pluton,* 5560 tons, and the aircraft carrier *Commandant Teste,* 10,000 tons, were also laid down in 1927. Not quite all of the smaller vessels of the 1927 programme had been commenced, but the delayed craft were to be taken in hand early in 1928.

GERMANY. The cost of the new German navy was constantly increasing. The naval budget for 1927 was 223,300,000 marks (1 mark = 23.8 cents); for 1926, 198,100,000; and for 1924, 104,200,000. That the government was looking forward to the day when the restrictions of the peace treaty were removed was shown by the large proportion of officers and petty officers (4979) to that of the general enlisted force (9935). Nor was the navy department satisfied to repair and retain its old ships until the happy day arrives, but was considering the designs of 10,000-ton battleships to replace the vessels she was allowed to retain by the treaty. It should be noted that the new ships of 10,000 *standard* tons will be of 11,000 to 12,000 tons under the old rating. According to published reports the designs provided for very moderate speed and radius of action. The engines were to be of the Diesel type. The protection against all forms of attack was to be particularly efficient and the battery to be the most powerful ever mounted on hulls of this size. Guns of 16-inch calibre were mentioned; but the Germans never were particularly keen for the largest sizes in guns, and pieces of somewhat less calibre may be chosen. While the general description seemed to imply a large monitor type, it was probable that the freeboard was to be greater than that of any monitors built by the United States.

While the battleship design was most favorably received, many officers strongly advocated fast armored cruisers of the same tonnage carrying eight to 12 8-inch guns—both guns and ship to be strongly protected by armor. The engines would be of Diesel type and the designed speed is probably much less than that of the average 10,000-ton light cruiser, but the radius of action might be fully as large.

While the battleship replacement is still under consideration, the partial modernization of the old battleships and the building of up-to-date cruisers, destroyers, and torpedo boats was proceeding steadily. The light cruiser *Konigsberg* was launched at Wilhelmshaven on Mar. 26, 1927; a sister ship, the *Karlsruhe,* was launched at Kiel on Aug. 20, 1927; and a third (*Cruiser D*—not yet named) was reported to be ready for launching. These vessels were developments of the *Emden,* completed in 1925, and have the same displacement. The improvements were said to have been made possible by economies effected in the weight of the hull. The length on the water line is 553.8 feet; beam, 46.59 feet; draft, 17.4 feet; displacement, 6000 tons. The armament consists of: nine 5.9-inch (or larger) Krupp guns of a new type; four anti-aircraft guns (probably of 3.46 inches) 4 triple torpedo tubes. The heavy guns are in three triple turrets—one forward, two aft, on the midship line. The after turret is low enough for the next turret to fire over it. Geared turbines of 65,000 h.p. form the main engines; speed, 32 knots. Diesel engines are provided for cruising and are designed to give a cruising radius of 5500 miles at 14.5 knots. Protection to vital parts is afforded by light armor and efficient subdivision. The complement is 500 officers and men.

GREAT BRITAIN. The amount of the naval budget for 1927–28 is £58,820,023 (£1 = $4.8665), which is £88,205 less than that of the budget for 1926–27. Of this, £3,537,780 was allotted to new construction in the government dockyards and £5,894,475 in private establishments. Repairs, modernization of ships, etc., call for £7,522,522, and include special work on four battleships, six cruisers of the *Cleopatra* class, eight destroyers, two aircraft carriers (*Courageous and Glorious*), nine submarines and some auxiliary craft. The budget provided for a total personnel of 102,275, divided as follows: (a) Officers in active service, 5324; subordinate officers, 727; warrant officers, 948; petty officers and men, 76,023; boys (including apprentices, etc.,), 8100; total, 86,122. (b) Marines: officers, 360; warrant officers, 33; non-commissioned officers and men, 10,045; total marines, 10,438. Total of seagoing services, 96,560. Cadets at the naval academy, 550; officers of the enrollment service, 75; boys and apprentices under instruction, 3311 (naval, 2600—mechanical, 711); total, 3936. Miscellaneous services, 1779. Grand total, 102,275. In addition to the expenditure of the Air Ministry on naval aviation, the naval budget supplies £882,000—£146,000 for the personnel, £32,000 for maintenance, £704,000 for material.

The programme for the construction of new vessels included one cruiser of 10,000 tons, two cruisers of 8000 tons, one flotilla leader, eight destroyers, six submarines, and two mine sweepers. Only one cruiser and the two mine sweepers had been ordered according to late reports, but tenders have been invited for the construction of the flotilla leader and the eight destroyers. No information concerning the flotilla leader had been given out, but it was said that the destroyers were to be of about 1300 tons and generally similar to the *Amazon* and *Ambuscade,* recently completed. The two battleships, *Nelson* and *Rodney,* of 35,000 tons, were completed during the year. Of the five cruisers of the *Kent* class (10,000 tons) all were completed or will be before the end of the fiscal year (Mar. 31, 1928). Six others of the *London* class (10,000 tons, but differing somewhat from those of the *Kent* class) were under various stages of construction—two had been launched, three had just been commenced, and one cruiser of 8000 tons had been ordered. The five vessels of the *Kent* class—*Kent, Berwick, Suffolk, Cumberland,* and *Cornwall*—were of 10,000 tons standard displacement; but at full load this would probably be over 13,600 as the fuel oil capacity was 3400 tons. The length on the waterline is 590 feet; beam, 68.33 feet; draft (at 10,000 tons), 16.25 feet. The hull has a flush upper deck and very high freeboard. There is some armor over the guns; and a turtle-back protective deck, with 4-inch slopes, covers the ship's vitals. The propelling machinery consists of four geared turbines, of 20,000 h.p. each, designed to give a speed of at least 31.5 knots. The main battery is composed of eight 8-inch guns in four turrets on the midship line—two forward, two aft—the second and third turrets being raised sufficiently to fire over the first and fourth respectively. Four 4-inch anti-aircraft guns, four 3-pdrs., and four 1-pdrs. are also carried.

The *Devonshire* class—*London, Devonshire, Shropshire, Sussex, Dorsetshire,* and *Norfolk* have a beam of 66 feet, horse power of 90,000, and speed of 32 knots but are otherwise like the *Kent* class. The large minelayer *Adventure* was completed late in 1926 and the submarine *Oberon* in 1927. Six other submarines were laid down in 1927, and four small gunboats (262 to 310 tons) for service in China were completed. The transformation of the cruiser *Courageous* into an aircraft carrier was reported to be complete at a cost of more than £2,000,000. Her sister ship, the *Glorious* was still under construction.

Work on the great naval base at Singapore was being steadily carried on. The contract for a floating drydock (amount, £1,200,000) was let and the work was well advanced. Five firms had been requested to submit tenders for the construction of docks and harbor works at Seletar, the site of the new naval base, on the northern side of the island of Singapore. It was said that the dredging at the base was approaching completion. The greatest item of this work was the mooring pool, for the new floating dock, which must be 1200 feet long, 900 feet wide, and 70 feet deep. A concrete dry dock, capable of taking two of the largest warships, was to be constructed as rapidly as possible. Other works contemplated or in process of construction were an airdrome, a high-power radio station, an oil fuel depot, workshops, offices, magazines, wharves, railways, roads, power plants, etc. Thanks to generous contributions from the Federated Malay States, New Zealand, and Hongkong—amounting in all to £3,250,000—Great Britain's share of the cost of the undertaking was not to exceed £6,000,000 if the expenditure was kept down to estimates.

GREECE. The vessels under construction for the Greek navy were three submarines of 730/930 tons—the *Proteus, Nereus,* and *Triton*—which are building in France. The *Proteus* had been launched and was completing afloat, but the other two were still on the ways. The surface speed is 14 knots and the submerged speed 9 knots. The extreme cruising radius is 4000 miles. The armament consists of one 100-mm. gun, one of 40 mm., and eight 21-inch torpedo tubes—six forward, two aft. The complement is 4 officers and 37 men. The smaller submarines (600 tons) were completed in France in 1927. The armored cruiser *Giorgios Averoff* (9956 tons, 24 knots, launched in 1910) and the light cruiser *Helle* (2600 tons, 20 knots, launched in 1912) had been repaired and to some extent modernized in France. The battleship *Salamis,* ordered in Germany before the war and still unfinished at the builders' yard, may be completed and turned over to Greece if the decision of the council of ambassadors is carried out. The *Ares,* a new schoolship of 1870 tons, for the cadets and sailors, was completed during 1927 at a private ship-building establishment in France. It is equipped with sail power and a steam engine of 1000 horse power which gives a speed of 10 knots.

ITALY. The naval budget for 1927–28 was 1,218,970,630 lire (present value of 1 lira = 5.4 cents) an increase of 9.5 millions over the budget for the preceding year. The actual expenditure for the navy was set at 1,070,658,000 lire, the remainder being for miscellaneous nautical services. The sum of 367,678,000 lire was allotted to new construction. The budget provides for 2200 officers, 6000 petty and warrant officers, and 43,000 men. Aviation was under the Minister of War (Mussolini), with operational control by the Grand General Staff (army and navy), and was rapidly developing. In 1922, there were but 600 planes; in 1927 there were about 2000; and in 1930, when the plans adopted will be completed, the number will be 2800 (army and navy). In 1927, in addition to aviation, the navy was especially concerned with minelaying and its strategic keys—scouts, destroyers, and submarines. The new programme provided for four scout cruisers of 5300 tons which will have the remarkable speed of 36 knots; for 12 flotilla leaders (or small scouts) of 2000 tons and 38 knots, each mounting 6 4.7-inch guns and 6 torpedo tubes; 1 large aircraft carrier; 3 submarine mine layers; and 6 submarines of moderate tonnage. The 2000-ton scouts were also to be equipped for the work of mine laying.

Nothing definite had been given out as to the new aircraft carrier except that it was to be of large size, of high speed, and that the plans were under preparation. The *Giuseppe Miraglia,* a former merchant vessel, was transformed into an aircraft carrier. The work was supposed to be completed in 1926 but further alterations were under way. She is of 5000 tons, has turbine engines which give her a speed of 21.5 knots, and is able to carry 20 planes. All of the vessels of the new programme except the 5300-ton cruisers and the new aircraft carrier were reported to be under construction. The 10,000 ton cruisers *Trieste* and *Trento* were greatly delayed. They belonged to the 1923–24 programme, but their actual laying down was deferred until early in 1925—one in February, one in March. The *Trieste* was launched Oct. 24, 1926, and the *Trento* Oct. 4, 1927. These and the other vessels under construction in the Italian navy are listed in the following table:

WARSHIPS BUILDING FOR ITALY

	Tons	*Condition*
Light Cruisers:		
Trieste	10,000	Launched Oct. 25–'26
Trento	10,000	" Oct. 4–'27
Bande Nere	5,300	ordered, 1927
Colleoni	5,300	" "
Da Barbiano	5,300	" "
Da Giussano	5,300	" "
Scouts (or flotilla leaders):		
12	2,000	all ordered, some laid down
Destroyers:		
8	1,155	all except 1 or 2 launched in 1927
Submarines:		
6	850/1065	all laid down in 1927
4	1390/1884	2 or 3 launched in 1927
3 minelayers	1400/1735	Bldg.
Minelayers.		
2	800	Launched 1927. Possibly completed

Japan. The naval budget for 1927–28 called for an expenditure of 255,000,000 yen. Of this the sum of 89,275,000 yen is to be devoted to new construction—75,000,000 (fifth installment) on the general program to be completed in 1928–29; 10,000,000 (second installment) on the modified programme of 1926 (four destroyers of 1700 tons); and 4,725,000 as first installment on the new 5-year replacement programme which is as follows:

	yen
4 light cruisers of 10,000 tons	106,000,000
15 destroyers of 1,700 tons	98,000,000
4 submarines (1 of 2,000 and 3 of 1,700 tons)	32,000,000
3 gunboats	4,300,000
1 aircraft carrier	31,000,000
1 minelayer	
Total	261,300,000

The budget also called for the creation of another air squadron, the equipment of the aircraft carriers *Amagi* and *Kaga*, the construction of new storage tanks for oil fuel, the extension of chemical research into matters which concern the navy, the lengthening of courses at the naval schools, and other matters of less importance. Like the *Constitution* in the United States and the *Victory* in England, the *Mikasa*, flagship of Admiral Togo at the battle of Tsushima, represents to the Japanese the greatest ship of their naval tradition; and they propose to convert her into a national monument. The funds necessary for the project are being raised by public subscription. So far as could be ascertained the vessels shown in the accompanying table were under construction for the Japanese navy on Dec. 31, 1927.

Of the aircraft carriers mentioned in the accompanying table, the *Kaga* (ex-battleship) was nearly complete and should be ready for service early in 1928. The *Naruto* was a former fuel-oil tanker of large size but having a speed of no more than 12 or 13 knots. Recent reports seemed to indicate that she was being fitted as an aircraft tender or practice ship and not a carrier as defined by the Five Power Pact. The crusiers *Nachi, Myoko, Ashigara,* and *Haguro* were the first of the 10,000-ton crusiers to be built by Japan and were reported to be similar in all essential respects. The length between perpendiculars is 630 feet; beam, 57 feet; draft, 16.5 feet; standard displacement 10,000 tons; displacement at full load, nearly 14,000. These vessels have a triple hull, designed to give the greatest possible protection against attack by submarines.

The vertical belt (3 to 4 inches thick) and the protective deck, over the boilers, engines, and other vitals, are each 410 feet long. It was reported that these vessels were to carry ten 8-inch guns; but a statement, said to have been given out by the Japanese navy department, asserted that the main battery was to consist of eight 8-inch guns in pairs in four turrets on the mid-ship line, the second and third turrets being raised high enough to fire over the first and fourth respectively. The character of the auxiliary battery was not disclosed, but four 4.7-inch anti-aircraft guns were to be mounted as well as twelve above-water, 21-inch torpedo tubes. The designed speed of the vessels at normal load was 32 knots.

WARSHIPS BUILDING FOR JAPAN

Name	*Tons*	*Condition*
Aircraft Carriers:		
Kaga	26,900	To be compl. early in 1928.
Naruto	15,000	Converting from tanker.
X	Unknown	To be laid down 1927–28.
Light Cruisers:		
Nachi	10,000	Lchd. June 14–'27.
Myoko	10,000	Lchd. Apr. 16–'27.
Ashigara	10,000	Ld. down, Apr. '25.
Haguro	10,000	" " Mch. '25.
Atago	10,000	" " 1926.
Takao	10,000	" " 1926.
X	10,000	" " 1927.
X	10,000	" " 1927.
Aoba	7,100	Ready for service
Kinugasa	7,100	Trials compl. Oct.–'27.
Destroyers:		
Nos. 35 to 58	1,700	7 lchd. 8 or 10 laid down.
" 30 to 34	1,400	Nearly ready for service.
Submarines:		
1 1st class	2000/2500	Ordered.
3 " "	1650/2200	"
3 or 4 (minelayer)	Prob. 1100/1550	Nearly complete.
7 1st class	Unknown	Probably laid down.
Gunboats:		
3 river gunboats	300 to 400	To be laid down 1927–28.
Aircraft carrier:		
1	Unknown	Nothing known.
Minelayer:		
1	Unknown	To be laid down 1927–28.

The *Atago, Takao,* and the two ships ordered in 1927 were presumed to be similar to those of the *Nachi* class but no information on this point was available. The *Aoba* and *Kinugasa* were the last of a class of four light cruisers to be completed. All carry six 8-inch guns in the main battery but the *Aoba* and *Kinugasa* have them in three turrets on the centre line—two forward, one aft; while on the *Kako* and *Furutaka* these guns are mounted singly in six turrets on the midship line—three forward, three aft—the middle gun of each group being high enough to fire over the others of the group. The destroyers of the new class have a large tonnage for vessels of that type but are rather small in comparison to recently designed flotilla leaders. No details are as yet available; nor are any details yet given out as to the new submarines, the new minelayer, or the new aircraft carrier.

Jugo-Slavia. The naval budget for the fiscal year beginning May 1, 1927 and ending April 30, 1928, amounted to 220 million dinars (1 dinar = 1.7 cents at present rates). This is an increase of 69 million dinars over the budget figures of 1926–27. The increase included 12 millions for improvement of the condition of the personnel and 30 millions for aviation, of which 15 millions was for the purchase of material. Two submarines, of 630 tons, that had been ordered in England, were completed in 1927 and were due to reach Cattaro before the end of the year. Six destroyers were ordered from the same firm but no notice of their completion and delivery had been given out. In 1926 the government bought from Germany the old protected cruiser *Niobe*. This vessel has a length on the waterline of 342.5 feet; beam, 38.7 feet; draft, 15.8 feet; displacement, 2600 tons, with about 8000 horse power. The engines gave a speed of 21 knots. The cruiser was to be thoroughly overhauled at Cattaro, and modernized as far as practicable. Two submarines, ordered from the Armstrong Company (England), were laid down in 1926, and were approaching completion. These boats have displacements of 975/1164 tons, with corresponding speeds of 15.5/10 knots. The armament consists of two 4-inch guns and six 21-inch torpedo tubes. Two boats, of 620 tons surface displacement, were building at Nantes (France). They were laid down in 1926 and should be completed in 1928.

Latvia. The submarines, *Ronis* and *Spidola*, which were built in France for the Latvian navy, were completed early in 1927 and turned over to the Latvian government. These boats have a length of 180.5 feet, a beam of 15 feet, and a displacement of 390 tons on the surface and 514 tons when submerged. The corresponding speeds are 14 and 9.25 knots. The armament consists of one 3-inch anti-aircraft gun, three machine guns, and six 17.7-inch torpedo tubes. The complement of each of the submarines is 41 officers and men.

Netherlands. The naval budget for 1927 was 40,982,965 florins (1 florin = 40.2 cents), a reduction of about 3,120,000 florins as compared with the budget of 1926. Of the total, the sum of 11,202,400 florins was allotted to new construction, 23,529,374 to general expense and upkeep of the navy, and 6,251,191 to non-military purposes. Four large destroyers of 1620 tons and the submarine *O–12* were building for the Netherlands navy. The destroyers are of the same design in all respects as the two described in the Year Book for 1925, p. 475, and which were completed in 1927. Two of the four that were building were launched in 1927; the other two were laid down in 1927 but had not been launched. The number of torpedo tubes is six, on two triple mounts. The horse power of the engines is 31,000, giving 34 knots at full load and 36 knots at light load. The complement is 126 officers and men. The patrol vessels or gunboats, *Flores* and *Soemba*, mentioned in Naval Progress for 1925 and 1926, were completed about the end of 1926. They are designed for service in tropical waters and have roomy quarters, two sets of Diesel engines (2000 h.p.—15 knots speed), three 5.9-inch guns on the centre line (two forward, one aft), one 3-inch anti-aircraft gun, two machine guns, a strong steel deck over vitals, a conning tower, large shields over the guns, and a very complete system of subdivision. The dimensions are: length on the waterline, 242.7 feet; beam, 37.7 feet; draft, 11.9 feet; displacement, 1676 tons.

New Zealand. The New Zealand Parliament voted the sum of one million pounds towards the development of the Singapore Base for the British navy. The payment was to be divided into annual installments for seven or eight years. The government had under consideration the further assistance to the British fleet of furnishing all or a part of the money to build two 8,400-ton cruisers (the new class B type of the British navy) to replace the *Diomede* and *Dunedin* of 4,650 tons that were about 19 years old.

Norway. The budget of national defense for 1927 provided for an expenditure of 12 million crowns (1 crown = 26.8 cents) for ordinary maintenance and the completion of submarines *B.5* and *B.6*. According to the Norwegian press it was the intention of the government to provide 20 million crowns for the renovation of the principal vessels of the navy. This renovation would include modern guns, new propelling machinery, and certain modifications of structure. New construction was to be limited to flotilla leaders, destroyers, submarines, aircraft, and aircraft apparatus. The budget for 1928 provided a plan for the expenditure of five million crowns each year for the new work.

Peru. In 1924 the Peruvian government ordered from the United States two submarines of 576/682 tons. These are 200 feet long. They are propelled by two Deisel engines of total horse power of 880, giving a surface speed of 14.5. The electric motors of 1000 horse power give a submerged speed of 9.5 knots. The cruising radius is 8000 miles. The armament consists of four 21-inch torpedo tubes and one 3-inch gun. The complement is 30 officers and men. After the work was well started in 1925 the Peruvian navy department sent to the builders a commission comprising the officers and petty officers who were to be included in the complements of the boats, for instruction. After a year's training and several short cruises the boats proceeded to Peru unescorted, stopping only at the Panama Canal for eight days as a short rest. The trip was made from New London to Colon in eight days and from Panama to Peru in six. No difficulties of any kind were experienced on the trip. A submarine base had been built on the Island of San Lorenzo, Callao Bay. Four additional boats were building, two to be completed in 1928.

Poland. Up to the end of 1927 the Polish navy had no naval dockyard, naval stations at Modlin and Pinsk having shops for the repair of river craft and small boats only. The new naval base at Gdynia was to be of more pretentious character but would not be completed until 1930. Two former French vessels— the protected cruiser *D'Entrecasteaux*, of 8000 tons, and the armored cruiser *Desaix*, of 7600 tons—had been turned over to the Polish government as station training ships at Gdynia. The former, which was renamed *Vladislav IV*, was to be used for recruits and mechanics, and the latter as the naval school for officers. The vessels building for the Polish navy consisted of two destroyers, *Burza* and *Wicher*, and three submarines, *Rys*, *Zbik*, and *Wilk*. The destroyers are of 1500 tons; the h.p. is 30,000 and the speed 32 knots; the armament consists of four 5.1-inch guns, one 1.5-inch anti-aircraft gun, and six torpedo tubes in two triple mounts. The submarines have displacements of 900 (surface) and 1200 (submerged) tons; the corresponding speeds are 12 and 8 knots. The armament consists of one 3.9-inch gun, one 1.5-inch anti-aircraft gun, and six 21-inch torpedo tubes. These boats are fitted as mine layers and carry 32 mines.

Portugal. It was reported that the Minister of Marine had submitted to the Council of Ministers a project for reorganizing the Portuguese navy and replacing the older vessels by those of new type, as well as adding to the numbers of the existing force. The programme consists of about thirty units and included light cruisers, destroyers, and submarines. The frequent changes in Portuguese government render the carrying out of such a programme rather improbable. In 1927, only six units of the new programme were definitely proposed—two flotilla leaders of 2000 tons and four destroyers of 1200 tons, and none of these had been ordered.

Rumania. In 1926–27 orders were placed in Italy for one submarine tender or depot ship, two destroyers, and two submarines. The destroyers, which are large enough to be styled flotilla leaders, are of 1800 tons displacement, will have engines of 44,000 horse power, and a speed of 35 knots. They were building at Naples. The submarines will have a surface displacement of 680 tons; the speed on the surface will be 14 knots and, when submerged, nine knots. The armament will be one 4-in gun and seven or eight torpedo tubes. They are building at Fiume.

Russia. From time to time the Soviet government published a programme for new naval construction which was to be undertaken without delay. Not one of these various programmes had been commenced. The wages in the Russian shipyards were only 60 per cent of the pre-war rates and such workmen as could be obtained for this low pay were few and inefficient. Obtaining credit or cash for building abroad was difficult. The programmes were therefore only pompous gestures designed to deceive other nations. The latest programme, published early in 1927, called for the building of six light cruisers of 3000 tons, a speed of 30 knots, armed with 6-inch guns and several torpedo tubes; four destroyers of 1400 tons; and an aircraft carrier of 8000 tons and a speed of 20 knots. In addition, several flotilla leaders or scouts, of the *Leone* (2200 tons) type, were to be ordered in Italy. The condition of the ships in the Russian navy is believed to be poor, the character of the personnel to be very inferior to that in any of the larger navies, the discipline to be relatively worse, and the general efficiency to be very low indeed.

Spain. The naval budget for 1928 allotted 177 million pesetas 1927 value of 1 peseta = 16.7 cents) for new construction and for improvement of the dockyards at Vigo, Cartagena, and Mahon. The vessels provided for are two light cruisers of 10,000 tons, three flotilla leaders of 1650 tons, and two submarines of the *C* class. These are included in the ones authorized by the royal decree of July 4, 1926 (see Year Book of 1926, p. 513), for completion in six years. The vessels under construction were: the light cruiser *Almirante Cervera*, 7850 tons; three flotilla leaders of the *Churruca* (1650 tons) class; 2–4 submarines of the *C* class, and the *Juan Sebastian de Elcano*, 3420 tons. The *Cervera* should have been completed in 1927 but seemed to be in hand at the end of the year. The flotilla leaders were laid down at Cartagena late in 1926. Two submarines of the *C* class, *C–5* and *C–6*, were laid down in 1927; *C–3* and *C–4* were laid down in 1926 and no reports of completion had appeared in 1927. These boats have displacements of 915/1290 tons; corresponding speeds, 16/8.5 knots. The approximate dimensions are: length, 247 feet; beam, 20.75 feet; depth, 13.5 feet. Machinery: two sets of eight cylinder Diesel engines. Battery: one 2.76-inch anti-aircraft gun, six 21-inch torpedo tubes—four in bow, two in stern. The schoolship *Elcano* was launched March 5, 1927, and was nearly complete if not quite so at the end of the year.

Sweden. The committee, charged with preparing a programme of construction based on the decisions taken by the Riksdag in 1925, presented its report. The committee insisted on a naval force capable of defending the entire coast of the country. It recommended a total expenditure for new construction, spread over the years 1928–38, of 105,400,000 crowns (1 crown = 26.8 cents) for the building of one coast defense battleship of the *Gustav V* type (7,900 tons), with certain improvements, costing 27,800,000 crowns; four destroyers of the *Nordenskjold* (975 tons) class; seven submarines; eight vessels combining the qualities of mine layers and submarine chasers; and one aircraft carrier capable of launching 12 seaplanes. The naval estimates for 1927–28, as prepared, called for an expenditure of 44,554,390 crowns. Of this, 5,049,000 crowns are allotted for operations of the fleet; 6,500,000 for the maintenance of vessels; 8,160,000 for new construction; and 170,000 for transforming the *Dristigheten* (armored coast defense ship of 3600 tons) into an aircraft depot ship. The Swedish government submitted its plans for the cruising or high sea fleet which was as follows: four coast defense battleships of the *Gustav V* type (one to be built); eight destroyers (two divisions) of the *Nordenskjold* type (six to be built); eight vedettes (two divisions—combined minelayers and submarine chasers) of 200 tons; nine submarines (three of type A—700/850 tons, two of type B—particulars not disclosed); and one aircraft carrier and minelayer combined (to carry 12 planes and a catapult for launching; displacement, 4500 tons and speed 22 knots). The only vessels under construction in 1927 for the Swedish navy were the destroyers, *Nordenskjold* and *Ehrenskold*, and the submarines, *Draken* and *Gripen*. The destroyers are of 975 tons; armed with three 4.7-inch guns, two 1-pounder anti-aircraft guns, and six 20.5-inch torpedo tubes in triple mounts; speed, 35 knots. These vessels should have been completed before the end of 1927. The submarines are of 700/850 tons; the *Draken* should be approaching completion but the *Gripen* would not be finished for another year.

Turkey. Work upon the new naval port and dockyard at Ismid was being carried out. It was presumed that the new dock at Ismid was approaching completion, or completed, as it had been reported that the battle cruiser *Sultan Selim* (ex-*Goeben*) was to be placed in it for repairs. Two submarines of 500 tons were completed at Rotterdam in 1927. Another boat was projected; also five destroyers of 36 knots and some mine sweepers of 20 knots.

United States. The naval budget for 1927–28 was $313,815,500. The vessels under construction were eight cruisers of 10,000 standard tons, three large submarines, and six river gunboats. Two of the cruisers, the *Pensacola* and *Salt*

Lake City, were laid down in 1926—the former at New York Navy Yard and the latter at the yard of the American Brown-Boveri Electric Corporation, Philadelphia. These vessels, which should be completed in 1929, have a length over all of 585.5 feet, a beam of 65.2 feet, and a draft at normal displacement (about 11,570 tons) of 19.5 feet. The side armor is 1.5 in. thick and the deck over the vitals is three inches. The armament consists of ten 8-inch guns in four turrets on the centre line—six in two triple turrets (Nos. 1 and 4—one forward, one aft) and four in two double turrets (Nos. 2 and 3—one forward, one aft), turrets Nos. 2 and 3 being high enough to fire over Nos. 1 and 4, respectively; four or six 5-inch anti-aircraft guns; five or six torpedo tubes; perhaps some other light guns.

Six other 10,000-ton cruisers were ordered; No. 26, at the yard of the Bethlehem Shipbuilding Corporation, Quincy, Mass.; contract price, $10,675,000—contract time, 36 months; No. 27, at the yard of the American Brown-Boveri Electric Corporation, Camden, N. J.; contract price, $10,815,000—contract time, 36 months; Nos. 30 and 31, at the yard of the Newport News Shipbuilding and Dry Dock Co., Newport News, Va.; No. 28 was to be built at the Navy Yard, Puget Sound, Wash.; and No. 29 at the Navy Yard, Mare Island, Cal. These six cruisers are practically identical in design but differ considerably from the *Pensacola* class—slightly in dimensions, somewhat in protection, but especially in the main battery which consists of nine 8-inch guns mounted in three triple turrets. The speed of the vessels of both classes will be about 33 knots; radius of action at 15 knots, about 13,000 miles.

V–4, a very large minelaying submarine, was launched in 1927 and should be completed in 1928. The particulars of submarines are not given out by the Navy Department. According to reports the surface displacement is 2890 tons and the surface speed, 17 knots. She is therefore the largest submarine afloat. The armament consists of one 6-inch gun, four 21-inch torpedo tubes, 60 mines. Submarines *V–5* and *V–6* were begun at Portsmouth and Mare Island navy yards, respectively, on June 1, 1926. No details are reported but it is said that the surface displacement will be in excess of 3000 tons.

Six gunboats were building at Shanghai, China, for service on the Chinese rivers. The *Guam* and *Tutuila* are of 380 tons and 5.25 feet draft. They will carry two short 3-inch guns behind shields, eight machine guns, and have a speed of 14.5 knots. The *Oahu* and *Panay* are of 440 tons and 5.5 feet draft. They will carry two 3-inch, 50-cal., anti-aircraft guns and eight machine guns, and have a speed of 15 knots. The *Luzon* and *Mindanao* are of 575 tons and have a mean draft of six feet. They will carry two 3-inch, 50 cal. anti-aircraft guns and eight machine guns and have a speed of 16 knots.

The aircraft carriers *Saratoga* and *Lexington* were to receive the last finishing touches and join the fleet early in 1928. They were the largest, best-armed, best-protected, and much the fastest vessels of their type in the world. The length over all is 888 feet; breadth of flying deck, 106 feet; mean draft, 22 feet. The hull protection consists of an armor belt of considerable thickness, armored deck, triple-hull, and other defense against torpedoes. The armament consists of eight 8-inch guns of very high power, twelve 5-inch anti-aircraft guns, and four 6-pounders. The propellers will be electrically driven and the designed speed is 34.5 knots. Every necessity and convenience for the handling and storage of airplanes and for facilitating their flight has been adopted. Planes can take off, or be catapulted, as found desirable, in any kind of weather; and they can land on the flight deck under almost any conditions. Each ship is designed to carry 72 planes. The modernizing of the battleships of the navy is being steadily carried out. This includes bilge and internal protection against torpedoes and mines, deck protection against airplane bombs, more rigid masts to improve range observation, change to oil-burning in older ships, addition or rearrangement of auxiliary or anti-aircraft guns, increased elevation of the turret guns of the older ships, and many other changes.

The aviation service of the navy still maintains its high reputation for efficiency as the best organized, equipped, and managed air service in any navy. In July, 1926, the number of modern planes on hand, fit in all respects for use, was 351. On July 1, 1927, the number had reached 468. During the fiscal year 1927–28, 436 planes were to be delivered. Making the necessary allowances for age, wear and tear, etc., the number of modern planes in first class condition on July 1, 1928, should be 718.

On December 17, 1927, the submarine *S-4* was sunk in collision near Provinceton by the Coast Guard patrol boat *Paulding*. The entire crew of 40 officers and men was lost but some remained alive and transmitted signals for about 30 hours. Every effort to reach these men was made but failed, largely because of the weather.

NAVIES. See Naval Progress.

NEBRASKA. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,296,372. The estimated population on July 1, 1927, was 1,396,000. The capital is Lincoln.

Agriculture. The following table gives the acreage, production, and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	8,805,000	291,446,000	$180,697,000
	1926	8,994,000	139,407,000	94,797,000
Hay	1927	4,783,000	7,201,000 [a]	54,485,000
	1926	4,291,000	4,926,000 [a]	64,032,000
Wheat, winter	1927	8,457,000	70,868,000	77,246,000
	1926	2,881,000	37,165,000	43,483,000
Wheat, spring	1927	173,000	2,958,000	3,106,000
	1926	196,000	2,920,000	3,270,000
Oats	1927	2,441,000	69,813,000	27,925,000
	1926	2,537,000	52,516,000	21,006,000
Potatoes	1927	84,000	8,904,000	6,678,000
	1926	78,000	5,329,000	8,526,000
Barley	1927	246,000	7,577,000	4,167,000
	1926	227,000	4,699,000	2,725,000
Rye	1927	274,000	4,110,000	3,165,000
	1926	253,000	2,606,000	1,981,000
Sugar beets	1927	82,000	1,048,000 [a]	
	1926	79,000	928,000 [a]	7,274,000

[a] tons.

Mineral Production. The total value of the mineral production of the State in 1925 was $3,358,585; in 1924, $3,209,425. Cement, sand and gravel, and stone were the chief products in point of total value produced.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $9,695,366; their rate per capita was $7.04. They included $1,320,758 apportioned for education. Totals not included in the above, of $138 in interest and $6,745,558 in permanent improvement outlays, brought the aggregate of State expenditure to $16,441,062. Of this, $5,419,135 was for highways; $748,679 being for maintenance and $4,670,456 for construction.

Revenue receipts were $17,362,037; or per capita, $12.60. Of their total, property and special taxes yielded 41.2 per cent, attaining a per capita rate of $5.19. Earnings of departments and compensation paid the State for officials' services supplied 10.4 per cent of revenue; 27.2 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a gasoline sales tax.

The State had on June 30, 1926, no indebtedness save a minor amount in outstanding revenue loans and warrants. Property subject to ad valorem taxation bore a valuation of $3,310,758,500. State taxes levied thereon were $7,556,615, or $5.48 per capita.

Transportation. The number of miles of railroad line in the State on Jan. 1, 1927, was 6,200.87. New construction in 1927, as reported by the *Railway Age*, was 6.03 miles of first and 0.45 mile of second track.

Education. Legislative enactment provided two important developments in the educational system of the State, as reported by State Superintendent Charles W. Taylor in the *Journal* of the National Education Association. The character education law was put into effect throughout the State; it provided that all schools, public, religious and private, must conduct courses in character education in the grades from 1 to 12. The adult immigrant education law created a division of adult immigrant education within the State Department of Education; its function was to deal with the training of such persons, both for naturalization and for the fuller performance of duty as citizens.

State statistics covering the school year 1926 gave the school population, including all individuals between the ages of five and 21 years, as 415,053. The number of school pupils enrolled was 327,472; average daily attendance was 267,833. Enrollment in the graded schools was 205,056; in high schools, 60,106. Teachers employed numbered 1642 men and 12,869 women. Average of teachers' salaries, in cities and villages, was, for men, $1,977.52; for women, $1,325.59. In rural schools. salaries of men averaged $797.24; of women, $797.59. The year's total of expenses for public school instruction came to $16,985,485. Total expenditure of all sorts, including outlays and debt service, was $31,200,710.

Charities and Corrections. A Department of Public Welfare exercised important powers, particularly with regard to child care. This body however did not have charge of the State institutions, which were under the authority of a separate Board of Control. Institutions under this board, with their populations as reported July 1, 1927, were: Nebraska Institution for the Feeble-minded, Beatrice, 827; inmates; Girls' Training School, Geneva, 227; Nebraska Soldiers' and Sailors' Home, Burkett, 253; Hastings State Hospital, Ingleside, 1356; State Industrial School, Kearney, 213; Hospital for Tuberculous, Kearney, 95; Lincoln State Hospital, 1118; Orthopædic Hospital, Lincoln, 106; State Penitentiary, Lincoln, 701; Nebraska Industrial Home, Milford, 83; Soldiers' and Sailors' Home, Milford, 98; Nebraska School for the Blind, Nebraska City, 48 (on June 1); Norfolk State Hospital. 877; Nebraska School for the Deaf, Omaha, 190 (June 1); State Reformatory for Women, York, 52; Nebraska Home for Dependent Children, Lincoln, 101; State Reformatory for Men, Lincoln, 253. A furniture manufactory was operated at the Penitentiary. Admittances to the three State penal institutions in 1926, according to the United States Department of Commerce, numbered 495.

Legislation. The State Legislature convened in biennial session January 4. It enacted various revisions of the criminal code, notably by extending the maximum penalty for robbery with a deadly weapon from 15 years to 50. Committees were named to confer with representatives of several of the large railroad systems, having tracks within the State, for the purpose of shaping a plan to end the yearly appeals taken by these systems from the valuations set on their properties by the Nebraska State Board of Assessment.

Events. There were found in deposits of Pliocene date, in the Western part of the State, in 1925 and 1926 objects supposed by palæontologists to have probably been bone implements. From the age of the beds in which they were found, it was deduced that if they were authentic man must have existed on the site over a million years earlier. Business conditions in the State improved sharply in the latter part of the year, because of the realization of large prices for crops. The United States Supreme Court affirmed the validity of the State's law as to securities May 2, in a suit brought against it by an investors' syndicate of Minneapolis.

Officers. Governor, Adam McMullen; Lieutenant Governor, George A. Williams; Secretary of State, Frank Marsh; Treasurer, W. M. Stebbins; Auditor, L. B. Johnson; Attorney General, O. S. Silliman; Superintendent of Public Instruction, C. W. Taylor.

Judiciary. Supreme Court: Chief Justice, Charles A. Goss; Associate Justices: William B. Rose; James R. Dean; W. H. Thompson; George E. Eberle; Edward E. Good; George A. Day.

NEBRASKA, University of. A State institution of higher education at Lincoln, Nebr., founded in 1869. The enrollment for the autumn term of 1927 was 6340 of whom 3686 were men and 2654 women. They were distributed as follows; agriculture, 507; arts and sciences, 1986; business administration, 714; dentistry, 89; engineering, 705; graduate, 279; law, 170; medicine, 303; nursing, 106; pharmacy, 110; teachers, 1459. Included in arts and sciences and in teachers' college were 469 students of the school of fine arts and 157 of the school of journalism. There were 3401 students registered in the summer sessions of 1927, of whom 938 were men, and 2463 women. The faculty numbered 357 in the autumn of 1927. The total income for the year was $4,444,817.76. The library contained 222,844 volumes. A department of business research was created during the year, a new hospital unit at Omaha was completed and the gymnasium at Curtis was remodeled. Acting Chancellor of the University, Edgar A. Burnett, D.Sc.

NEBULÆ. See Astronomy.

NEBULIUM. See Physics, in the section on Spectroscopy.

NECROLOGY. The following list contains the names of notable persons who died in 1927. Articles will be found in this volume, in their alphabetical order, on those whose names are given below without other text.

Abbema, Louise.

Abbot, Edwin Hale.

Abbot, Henry Larcom.

Abert, Hermann

Ackert, Charles H.

Adams, Brooks.

Adams, Edwin Augustus.

Adams, John Haslup. American editor, died at Ruxton, Md., October 13. He was born at Baltimore, Md., Jan. 31, 1871, and was first employed by the Baltimore and Ohio Railroad. In 1899 he became connected with the *Baltimore News* and in 1904 was made managing editor, a position which he held until 1906. In 1910 he left the *News* to become editor of the Baltimore *Evening Sun*, a position he held until 1912, when he became editor of the Baltimore *Morning Sun* also, being engaged in this dual work until 1920, when an editor for each paper was appointed and Mr. Adams became editor of *The Sun*. In addition to his editorial interests, which involved a close study of politics and included the preparation of many of the leading articles in *The Sun*, he was well known as an art connoisseur.

Adams, Samuel. American editor and newspaper man, died at Washington, D. C., January 4. He was born at Westfield, Mass., May 13, 1876, and, after studying at the Florida State College at Lake City, entered the newspaper business. He served various daily newspapers in the business department. He later studied at George Washington University, 1907–08, and became editor of the *Fruit Grower and Farmer* in 1910. Later he became editor of *Public Affairs* of Washington, D. C. He served as director general of the National Federation of Uncle Sam's Voters, and was associate editor of the *American Fruit Grower Magazine*, of Chicago. In addition to his editorial work, Mr. Adams was an extensive fruit grower and farmer. He was a candidate for the nomination for Vice President at the Republican National Convention in Chicago in 1920.

Aiken, John Adams. American jurist, died January 28. He was born at Greenfield, Mass., Sept. 16, 1850, and after graduating at Dartmouth College in 1874 was admitted to the Massachusetts bar in 1876, taking up practice with his father at Greenfield. In 1883 he was a member of the Massachusetts House of Representatives, and from 1890–1897 was district attorney for the northwest district of Massachusetts. In 1898 he became a justice of the Superior Court and in 1905 its chief justice, serving until 1923.

Aikens, Charles Thomas.

Aitken, The Rev. William Hay MacDowall Hunter. British clergyman of the Church of England, died at Norwich, England, October 28. He was born at Liverpool, Sept. 21, 1841, and was the son of the Rev. Robert Aitken, one of the founders of the parochial mission movement. The younger Aitken was educated at home and at Wadham College, Oxford. He was ordained to the curacy of St. Jude, Mildmay Park, England, in 1865, and six years later to that of Christ Church, Everton. He was closely associated with Moody and Sankey, the American evangelists, when they visited England in 1873. From 1875 on he gave himself up entirely to the work of an evangelistic mission preacher. He visited the United States twice, and made an extended tour of Canada. He was the author of many volumes of sermons and devotional studies.

Albee, Ernest. Professor of philosophy at Cornell University, died at Ithaca, N. Y., May 26. He was born at Langdon, N. H., Aug 8, 1865, and after graduating at the University of Vermont in 1887 studied as a fellow at Clark University and at Cornell. He became instructor of philosophy at Cornell in 1892 and in 1907 was made professor of philosophy, after service in the intermediate grades. He was co-editor of *The Philosophical Review* from 1903–08, and from 1924 until his death. He wrote *A History of English Utilitarianism* (1902), and magazine articles.

Alden, Earl Stanley. American educator and author, died by drowning at North Pownal, Vt., July 12. He was born in 1887, and graduated at Colorado College. He studied at the University of Illinois and Harvard University also. He had been connected with the faculties of the University of Illinois and of Smith College in the departments of English, and at the time of his death was head of the English department at St. John's College, Annapolis, Md. He lectured extensively on English literature.

Alderson, Lieut. General Sir Edwin Alfred Hervey.

Aldrich, Sherwood.

Alexander, Charles Beatty.

Allaben, Frank. American editor and genealogist, died at New York, February 15. He was born at Oberlin, Ohio, Jan. 30, 1867, and was educated at Oberlin College. After spending many years in Illinois as a newspaper man, he went to New York, and in 1911 became editor of the *Journal of American History*. He was also editor of the *Journal of American Genealogy* and managing editor of *MacMaster's Commercial Cases*. He was president of the National Historical Society.

Almy, Aimée Geraldine, formerly Baroness Michelham. British philanthropist, died at Paris, January 1. She was the daughter of Octavius Bradshaw, and in 1899 was married to the first Baron Michelham, who died in 1919 leaving her one of the richest peeresses in England, the estate of her husband being estimated at some £20,000,000. During the World War she equipped and maintained at her own expense a series of hospitals, and was president of the League of Mercy. She received many decorations from the French government, including the Order of Mercy and the Médaille des Epidémies, and was made a member of the Legion of Honor. On February 5, 1926, she was married to Frederick Almy, an American citizen, in Clearwater, Fla. Her philanthropies were numerous and extensive. Lady Michelham maintained a racing stable, in her own name.

Alves, Mrs. Carl.

Alvord, Benjamin.

Ancher, Michael Peter.

Anderson, John Francis.

Anderson, the Rt. Rev. Joseph Guadentius.

Armour, Jonathan Ogden.

Armour, Malvina Bell. Widow of Philip D. Armour, founder of Armour & Company, meat packers, died at Chicago, Ill., July 25. She was the daughter of Jonathan Ogden of Cincinnati, Ohio, where she was born May 7, 1842. She was educated in Cincinnati, and in October, 1862, married Mr. Armour, who died in 1901.

Arnold, Edward D. American economist, died at New York, November 20. After graduating at Syracuse University in 1909 with the degree of B.S, he taught school at Lysander, N. Y., and Gouverneur, N. Y., before going to New York University, at New York, as assistant professor of finance. He served in the World War as a major in the American Expeditionary Forces.

Arrhenius, Svante August.

Artsybashev, Mikhail Petrovitch.

Ashley, Sir William (James).

Axerio, Emilio. Italian Consul General at New York, died in that city August 14. He was born in 1877 and entered the Italian consular service in 1903, as vice consul at Rio de Janeiro, Brazil. During the World War he was recalled to the home office, where he supervised the importation of coal from Wales. Later he became consul at Liverpool, and in 1924 was made consul general.

Ayer, Edward Everett.

Bailey, George M. American editor, died at Houston, Tex., July 4. He was born in Wiscasset, Me., in 1864, and at the age of 14 became a printer's apprentice on the Danville, Va., *News*. In 1882 he went to Columbus, Ga. as city editor of the *Columbus Times*, and in the following year moved to Texas, where from 1890–1904 he was a member of the staff of the *Dallas Morning News*, serving for the last five years of this period as its correspondent in Washington. In 1904 he became connected with the *Houston Post*, and in 1924 became editor of the *Houston Post-Dispatch*, a position which he held at the time of his death. He was well known for his editorial and political writings, and had been asked to prepare a survey of European political, financial, and sociological conditions for a party of prominent American editors sent to Europe by the Carnegie Foundation in 1927, but illness intervened.

Bain, George Washington. American lecturer and temperance worker, died at Lexington, Ky., March 28. He was born at Lexington, Sept. 24, 1840, and was educated at Hutchinson School, Kentucky, 1848–58. He began his career as a lecturer in 1880. He was grand counselor of the Good Templars of Kentucky, 1870–75, and grand chief templar, 1875–80.

Baker, Charles Fuller.

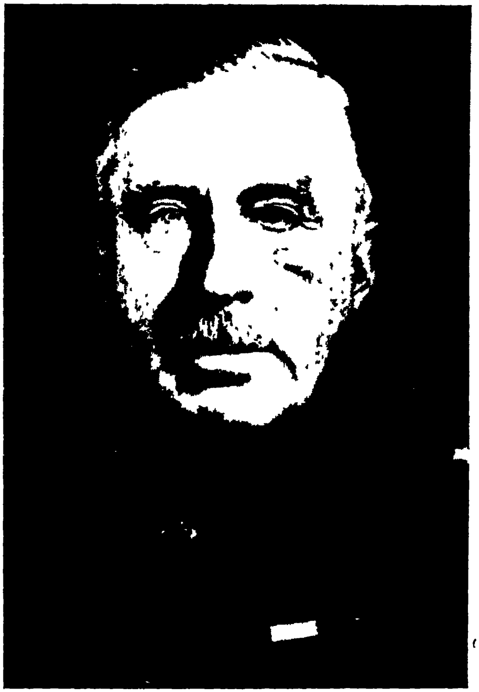
Bakhterev (Bechterev) Vladimir Michaelovich. Russian psychologist, died December 24. See PSYCHOLOGY, under *News and Notes*.

Balch, Edwin Swift. American author and explorer, died at Philadelphia, Pa., March 15. He was born in Philadelphia in 1856, and after graduating at Harvard in 1878 studied law and was admitted to the bar in Philadelphia in 1882. He traveled extensively and made explorations, and wrote numerous papers on mountains, caves, the Antarctic regions, prehistoric man, etc. He was a member of many scientific societies. His published works include: *Mountain Exploration* (1893); *Glaciers or Freezing Caverns* (1900); *Antarctica* (1902); *Comparative Art* (1906); *The North Pole and Bradley Land* (1913); *Mount McKinley and Mountain Climbers' Proofs* (1914); *Elise Willing Balch, in Memoriam* (1917); (with Eugenia Mac-

Underwood & Underwood

JUDGE ELBERT H. GARY

**Chairman of the United States Steel Corporation,
August 15, 1927**



Underwood & Underwood

MAJOR-GENERAL LEONARD WOOD

**Governor-General of the Philippine Islands,
August 1, 1927**

Underwood & Underwood

JOHN DREW

**American Actor,
July 9, 1927**

Underwood & Underwood

ALBERT J. BEVERIDGE

**Former United States Senator from Indiana,
April 27, 1927**

FOUR PROMINENT MEN WHO DIED IN 1927

farlane Balch) *Art and Man* (1918); and *Arts of the World* (1920).

Balch, Thomas Willing.

Baldwin, George Johnson.

Baldwin, Simeon Eben.

Ball, Ernest R. American composer of popular songs, died at Santa Ana, Cal., May 3. He was born at Cleveland, Ohio, July 21, 1878, and received his musical education at the conservatory there. He then went to New York, where he was well known on the vaudeville stage. Of his numerous songs, many enjoyed immense popularity, the most widely known being *Love Me, and the World is Mine*, and *Mother Machree.*

Barsotti, Charles. Italian-American publisher, died at Coytesville, N. J., March 30. He was born at Pisa, Jan. 4, 1850. Eight years after his arrival in the United States as an immigrant in 1872, he founded *Il Progresso Italo-Americano,* which became one of the most influential Italian-language newspapers published outside of Italy. He was decorated by King Victor Emmanuel with the Cross of Grand Officer of the Crown of Italy in appreciation of his work to promote better relations between Italy and the United States. He was responsible for the erection of statues of Columbus, Verazzano, Garibaldi, Verdi and Dante in New York and other cities.

Bartlett, John.

Bartlett, Joseph Gardner. American genealogist, died at Boston, Mass., November 11. He was born at Boston, Mass., Aug. 25, 1872, and after studying for two years at the Massachusetts Institute of Technology practiced as an architect in Boston, 1892–1904. In the latter year he took up genealogical and historical research professionally, and became active in that field in the United States and England, publishing special genealogies and other works.

Battle, Samuel Westray. American physician and surgeon, died at Asheville, N. C., April 28. He was born at Westrayville, Nash County, N. C., Aug. 4, 1854, and after graduating at the University of Virginia in 1874 studied medicine at the Bellevue Hospital Medical College, New York. He was for ten years a surgeon in the United States navy, but retired on account of injury, and entered private practice; he was medical director of the Clarence Barker Memorial Hospital, Biltmore, N. C., from its organization. He was surgeon general of the National Guard of North Carolina for many years, retiring with the rank of brigadier general.

Bauer, Sybil. American swimmer, died at Chicago, January 31. She was born in 1904, and at the time of her death was said to hold 23 world's back-stroke swimming records, after eight years of swimming. In October, 1922, she broke the swimming record held by a man, for 440 yards, back-stroke. She was a senior at Northwestern University at the time of her death.

Baxter, Sylvester.

Bazzani, Luigi. Italian painter and teacher of art, died at Rome, February 3. He was born in 1846, and was said to have acted as teacher in drawing and water color to King Victor Emmanuel. He was especially known as a painter of theatrical scenery.

Bearsted, Viscount (Marcus Samuel).

Beatty, James Helmick. American jurist, died at Los Angeles, Cal., October 21. He was born in Lancaster, Ohio, and graduated at Ohio Wesleyan University in 1859. During the Civil War, 1863–65, he served as first lieutenant of the Fourth Iowa Battery. From the time of his discharge from the army to 1872 he practiced law in Lexington, Mo., and in the latter year he moved to Hailey, Idaho, where he practiced until 1882. Then he moved to Boise City, where he became United States attorney for Idaho. He was a member of the Territorial Council of Idaho, 1886–87, and a delegate to the Constitutional Convention in 1889, in the same year becoming chief justice of the Supreme Court of Idaho, serving for two years. In 1891 he was Judge of the United States District Court, serving until 1907.

Bechterev, Vladimir Michaelovich. Russian psychologist, died December 24. See PSYCHOLOGY, *News and Notes.*

Beer, William. American librarian, died at New Orleans, La., in January. He was born at Plymouth, England, May 1, 1849, and graduated at the College of Physical Science, Newcastle-on-Tyne, England. In 1879 he was in business, later becoming a mining engineer in the United States, 1886–90. In the latter year he became librarian at the Topeka, Kan., Public Library and in 1891 librarian of the Howard Memorial Library in New Orleans, serving jointly in charge of the New Orleans Public Library, 1897–1906. He was well known for his knowledge of history and bibliography, being a member of numerous organizations in those fields.

Bell, Carl.

Benjamin, George Hillard.

Bennett, Edward Brown. American lawyer, died at Hartford, Conn., March 24. He was born at Hampton, Conn., Apr. 12, 1842, and after graduating at Yale began the practice of law in Hampton, removing to Hartford in 1869. In 1868 he was a member of the Connecticut General Assembly; assistant clerk of the House in 1869; clerk, 1870; secretary of the Republican State Central Committee, 1870–76; clerk of the Senate, 1871; clerk of the Hartford Police Court, 1871–73; member of the Common Council, 1872; judge of the City Court of Hartford, 1878–91; postmaster of Hartford, 1891–96, and again, 1900–07. He was president of the Hartford Yale Alumni Association, 1901–02. At the time of his death he was president of the Hartford City Gas Light Company, and a director in several other corporations.

Benton, Guy Potter.

Benton, Sir John. British civil engineer, died at Eastbourne, England, August 29. He was born at Sherrifhaugh, Scotland, Aug. 5, 1850, and was educated at Aberdeen University, at Edinburgh University, and the Royal India Engineering College. He was appointed assistant engineer in the India Public Works Department in 1873, and became executive engineer in 1881, superintending engineer in 1897, chief engineer in 1900, and inspector-general of irrigation in 1905. He retired in 1912, having been responsible for most of the canal construction in the Punjab and Burma making possible irrigation work and power developments. In 1902 he was created a Companion of the Order of the Indian Empire, and in 1911 promoted to Knight Commander of the Indian Empire.

Bergmann, Sigmund. German electrical engineer, died at Berlin, July 7. He was born in Muelhausen, Thuringia, in 1851, and emigrated to the United States when 17 years of age, eventually becoming an official of the Edison Company and assistant to Thomas A. Edison. In 1891 he returned to Germany and founded several electrical firms, which in 1900 were consolidated into the Bergmann Elektrizitaetswerke zu Berlin.

Bernard, the Most Rev. and Rt. Hon. John Henry.

Bernard, Sam. American comedian, died at sea on his way to Europe, May 17. He was born of Jewish parents in Birmingham, England, June 16, 1863, and was taken to New York by his mother in 1868, being educated in the public schools of that city. At an early age he made his appearance on the stage at concert halls in Coney Island. After a successful career in various music halls in German impersonations, he made his appearance on the legitimate stage in New York in 1886, and from that time on was a popular favorite, playing in many comedies.

Bernstein, Claus. Danish statesman, died at Copenhagen, March 27. He was born in 1854, and was for many years a member of the Danish Parliament. He was at one time Liberal premier. He had retired from public life in November, 1926.

Berry, Walter Van Rensselaer. International lawyer, died at Paris, October 12. He was born at Paris, France, July 29, 1859, and graduated at Harvard in 1881. He studied law at Columbia and was admitted to the bar in 1885. He practiced at Washington, D. C., specializing in international law, and in 1908 was made judge of the International Tribunals of Egypt. Retiring from this position in 1911, he devoted himself to the practice of international law in Paris. He served as president of the American Chamber of Commerce in Paris, 1916–23. He was made a Commander of the Legion of Honor of France, and received from Italy the Order of the Crown of Italy and the Order of St. Maurice and St. Lazarus.

Beveridge, Albert Jeremiah.

Bingham, Amelia.

Bingham, Robert.

Bird, Charles Sumner. American paper manufacturer, died at East Walpole, Mass., October 9. He was born at Walpole, Mass., Aug. 18, 1855, and after attending the public schools of that place and Phillips Andover Academy graduated at Harvard in 1877. He entered his father's paper mills at East Walpole, and later, coming into the control of it, he extended the business. He was president of Bird & Son, Inc., acquiring mills at Phillipsdale, R. I., Hamilton and Pontrouge, Canada, and Chicago. Originally a Democrat, in 1912 he joined the Progressive Party and was its candidate for Governor of Massachusetts in 1912 and 1913, but was defeated.

Black, Ebenezer Charlton.

Blaisdell, Albert Franklin.

Blau, the Rev. Dr. Joel. Rabbi and senior member of the West London Synagogue of British Jews, died in London, October 22. He was born in Hungary in 1878, and, going to the United States in 1903, graduated from the Hebrew Union College and the University of Cincinnati in 1908. He served as pastor of synagogues in Rochester and Brooklyn, and of the Congregation B'nai Jeshurun and Temple Peni-El in

New York. In 1925 he was appointed senior minister of the West London Synagogue of British Jews, which was founded by Spanish and Portugese Jews in 1830. He was an able preacher, and his sermon on "The Great Hunger" was considered, at the time of its delivery in 1925, one of the notable sermons of the year. He wrote extensively both in English and Hebrew. His writings include: *The Problem of Modern Faith* and *The Wonder of Life.*

Boltwood, Bertram Borden

Bonbright, William Prescott

Bond, the Rt. Hon. Sir Robert.

Bonzano, John, Cardinal.

Borden, Lisbeth A. (Lizzie). Accused of murder and tried in 1892, but acquitted after a notable trial, died at Fall River, Mass., June 1. She was born in 1859, and came into public notice on Aug. 4, 1892, when the bodies of her wealthy father and stepmother were discovered in their home at Fall River. They had been hacked to death. Miss Borden was arrested and charged with the crime, which baffled the authorities, and the trial attracted widespread attention, involving as it did the services of some of the most eminent lawyers in Massachusetts. Miss Borden was acquitted, and lived in retirement until her death. A sister who lived with her for a number of years later declared her positive belief in the innocence of Lizzie.

Borghese, Prince Luigi Scipione. Head of a famous Italian family, died at Rome, March 15. He was born at Migliarino, near Pisa, Feb. 11, 1871, and was the son of Paolo, the ninth Prince of Borghese. Prince Luigi in 1895 married Anna Maria de Ferrari of the family of the ancient Dukes of Ferrara.

Bosworth, Edward Increase.

Bourchier, Arthur.

Bowen, Herbert Wolcott.

Bowles, Rear Admiral Francis Tiffany, U. S. N.

Brackett, Charles Albert. American dentist and educator, died at Newport, R. I., March 20. He was born at Lempster, N. H., Jan. 2, 1850, and after graduating at the Harvard Dental School in 1873 with the degree of D.M.D., practiced at Newport until his retirement in June, 1923. He held various positions at the Harvard Dental School, from 1874 until 1923, when he retired as professor emeritus of oral pathology. From 1888 to 1897 he was president of the Rhode Island State Board of Registration in Dentistry. He was a delegate to the International Medical Congress in London in 1881, to the Ninth International Medical Congress at Washington, D. C., in 1887, and to the World's Columbian Dental Congress, Chicago, Ill., in 1893. He was a member of many dental and medical societies, being at one time president of the New England Dental Society and also of the American Academy of Dental Science.

Braganza, Dom Miguel, Duke of. Pretender to the crown of Portugal, died at Castle Seebenstein, near Vienna, October 11. He was born at Kleinheubach, Austria, Sept. 19, 1853, the son of the Prince Miguel who was banished from Portugal in 1832. He took little interest in European politics, and made but few attempts to enforce his claim to the throne of Portugal. One of these attempts was after the murder of King Carlos in 1908 and during the short period of the reign of King Manuel.

Brandes, Georg Morris Cohen.

Bratianu, Jon.

Brett, Lloyd M.

Bristol, Sir Edmund James. Canadian statesman died at Toronto, Ontario, July 14. He was born at Napanee, Ont., Sept. 4, 1861, and after receiving the degree of B.A. from Toronto University became a barrister in 1886. He was a member of the House of Commons of Canada, for Centre Toronto, from 1905 as a Conservative. He served in the Dominion Parliament from 1920, and from September to December, 1921, he was a cabinet minister, without portfolio, in the cabinet of Arthur Meighen, and a privy councilor. He was knighted in 1908.

Brown, Abbie Farwell. American author, died at Boston, Mass., March 5. She was born at Boston, and was educated at the Girls' Latin School and Radcliffe College, later traveling extensively abroad. She was a member of the Poetry Society of America, and president at one time of the New England Poetry Club. Among her writings are: *The Book of Saints and Friendly Beasts* (1900); *The Lonesomest Doll* (1901); *In the Days of Giants* (1902); *A Pocketful of Posies* (verse) (1902); *The Curious Book of Birds* (1903); *The Flower Princess* (1904); *The Star Jewels and Other Wonders* (1905); *The Story of St. Christopher* (1905); *Brothers and Sisters* (1906); *Friends and Cousins* (1907); *Fresh Posies* (verse) (1908); *John of the Woods* (1909); *Tales of the Red Children* (with J. M. Bell) (1909); *The Christmas Angel* (1910); *Their City Christmas* (1912); *Swapping Day* (play) (1912); *The Lucky Stone* (1914); *Songs of Sixpence* (verse) (1914); *Kisington Town* (1915); *Surprise House* (1917); *Heart of New England* (poems) (1920), *Round Robin* (1921); *The Lights of Beacon Hill* (1922); *Gigi* (motion picture) (1923); *The Boyhood of Edward MacDowell* (1924), and *Our Christmas Tree* (1925).

Brown, William Cabell.

Brownell, Clarence Ludlow.

Bruckner, Eduard.

Brush, Edward F. American surgeon and politician, died at New York City, October 3. He was born at Dublin, Ireland, in 1847. He went to Canada with his father when three years of age, and in 1864 enlisted as a private in the Sixteenth Maine Infantry, Union army, serving to the end of the Civil War. He was graduated from Bellevue Medical College in 1875, and in 1878 moved to Mount Vernon, N. Y., of which he became the first mayor, serving four terms. He was leader of the Republican Party in that city.

Brush, George Washington. American physician and author, died at Brooklyn, N. Y., November 18. He was born at West Hills, N. Y., Oct. 4, 1842, and after studying and practicing dentistry for several years studied medicine, graduating at the Long Island College Hospital in 1876. He served throughout the Civil War in the Union army, and received the Congressional Medal of Honor for conspicuous gallantry. Dr. Brush practiced medicine in Brooklyn, N. Y., and was also conspicuous in public and civic movements in that part of New York City. He wrote many magazine articles on medical subjects, and was a frequent contributor to newspapers on civic and municipal questions.

Brushingham, John Patrick.

Bryan, Charles W.

Buell, Caroline Brown. American temperance worker and lecturer, died at Hartford, Conn., October 13. She was born at Marlboro, Mass., October 24, 1843, and was educated at public and private schools. She was assistant recording secretary of the national Woman's Christian Temperance Union, 1878–80, and corresponding secretary, 1880–93. She originated the Loyal Temperance Legion, the children's branch of the Woman's Christian Temperance Union, and wrote and lectured in behalf of temperance.

Bullard, William Hannum Grubb.

Burchard, Anson Wood.

Burn, the Very Rev. Andrew Ewbank.

Burnham, Clara Louise.

Bury, John Bagnell.

Bush, Benjamin Franklin.

Butler, Joseph Green, Jr.

Butler, Nathaniel.

Byrne, Frank M. Former Governor of South Dakota, died at San Francisco, December 25. He was born at Volney, Iowa, Oct. 23, 1858, and received a grammar school education. In 1879 he went to Sioux Falls, in what was then Dakota Territory, and took up a homestead in McCook County, later moving to Faulk County. He was engaged in farming and the real estate business. He was elected to the legislature, and served as Lieutenant Governor of South Dakota, 1909–13, and Governor, 1913–1917, as a Republican. From 1922 until shortly before his death he was commissioner of the State department of agriculture.

Cagiano de Azevedo, Octavius, Cardinal. Chancellor of the Roman Catholic Church, died at Anzio, near Rome, July 11. He was born in Spain in 1845, and succeeded Monsignor Della Volpe as major domo of the Vatican when the latter became a cardinal in 1901. Mgr. de Azevedo was created a cardinal in 1905.

Caldwell, John A. American jurist and former lieutenant governor of Ohio, died at Cincinnati, Ohio, May 24. He was born at Fairhaven, Ohio, Apr. 21, 1853, and, after working as a farm hand and teaching school, graduated at the Cincinnati Law School in 1876. He was elected prosecuting attorney of Cincinnati in 1881, and as a Republican was elected to the 51st, 52nd, and 53rd Congresses, resigning from the last May 1, 1894. having been elected Mayor of Cincinnati. He served for twenty-five years as judge of the court of common pleas, and at one time was lieutenant governor of Ohio. He established the Juvenile Court at Cincinnati, and was an advocate of probation for criminals.

Calles, Señora Natalia. Wife of Plutarco Elias Calles, President of Mexico, died at Los Angeles, Cal., June 2, where she had been sent for surgical treatment. She was born at Nogales, Mex., the daughter of one of the leading families of the State of Sonora. She was educated at Mexico City. Because of her democratic ideas and her philanthropies she was popular among the Mexican people. She took little part in politics.

Cambridge, Lt.-Col. the Marquis of.

Cameron, Josephine (Mrs. Marion Josephine King). American actress, died at Portland, Me., November 1. She was born in 1848, and her first engagement was at Portland, Ore., with a stock company. She made her début as leading woman at San Francisco, playing Julia in *The Hunchback,* and also was a member of the Ford Stock Company at Baltimore, in addition to playing with Kate Claxton in *The Two Orphans*, and in Bartley Campbell's *White Slave* company. In 1886 she went on a joint starring tour of the West Indies and South America with Barton Hill, and later traveled through the United States with Louis Mann as her leading support.

Cameron, William E. Former Governor of Virginia, died at Richmond, Va., January 25. He was born at Petersburg, Va., Nov. 29, 1842, and was active in Virginia newspaper life, being editor of several important papers. He was the Governor of Virginia, 1882–86, and in the Bryan campaign of 1896 opposed free silver, while editing a newspaper in Petersburg, Va. He was later editor of *The Virginian-Pilot* of Norfolk, Va. He was influential in the calling of the Virginia constitutional convention in 1904.

Campanari, Giuseppe.

Campbell, George S. Canadian banker, died at Montreal, Canada, November 21. He was born at Edinburgh, Scotland, July 8, 1851, and was educated at a private school in Glasgow. He entered the firm of F. D. Corbett & Co., steamship agents, Halifax, N. S., in a subordinate capacity, rising to a partnership, and, when Mr. Corbett retired, to the position of principal, the firm becoming G. S. Campbell & Company. He was president of the Halifax Board of Trade, and was active in many patriotic, civic and philanthropic works.

Canevin, the Most Rev. John Francis Regis.

Carillo, Gómez. French author, died November 29. He was born in South America, but the greater part of his life was spent in France, where he had considerable vogue as a writer. One of his books was *The Mystery of the Life and Death of Mata Hari;* she was the dancer who was shot as a spy during the War, after a trial which interested all France because of her friendship, real or alleged, with men in high places.

Carpenter, Joseph Estlin.

Carson, John Fleming.

Carver, W. F. Former American scout, champion marksman and showman, died at Sacramento, Cal., September 1. He was born in 1840, and after serving through the Civil War as a scout against the Indians became a champion rifle and pistol shot. He traveled through India and Australia as well as the United States, displaying his skill. With William F. Cody ("Buffalo Bill") he originated the "Wild West" show, which tried to depict conditions of the frontier days in the United States.

Casanowicz, Immanuel Moses.

Cathcart, Earl of (George Cathcart). Died at London, November 19. He was born June 26, 1862, the third son of the third earl, and succeeded his brother in 1911. His name came prominently before the public, American and British, in 1926, when his divorced wife, Vera, Countess of Cathcart, was barred temporarily from the United States on the ground of moral turpitude, following her elopement with the Earl of Craven. The earl had divorced her in 1922. He was formerly a lieutenant in the Fourth Battalion of the Prince of Wales' Own York Regiment.

Cavanaugh, Colonel James B.

Chajes, The Rev. Dr. Hirsch Perez. Chief rabbi of Vienna, Austria, died December 13. Dr. Chajes was called by Dr. Stephen S. Wise, of New York, "one of the great Jews of his generation." In 1921 he visited the United States in behalf of the starving children of Europe.

Chakste, Janis.

Chamberlain, Houston Stewart.

Charlotte, Princess.

Choate, Charles Francis, Jr.

Clague, Stanley. American publisher and advertising manager, died at Chicago, January 19. He was born on the Isle of Man in 1871, and, going to the United States when 20 years of age, became secretary to the late Charles W. Eliot, president of Harvard University. Later he served in the advertising department of the Curtis Publishing Company, Philadelphia. In 1908 he organized an advertising agency of his own in Chicago, which developed and was consolidated with another organization. He became connected with the Audit Bureau of Circulation, an institution maintained by newspapers and publications to certify circulation and otherwise promote fair dealing with the advertisers, serving as managing director and chairman of the Standard Forms and Audit Company. He was also president of the Affiliated Agents' Association of America and of many other advertising organizations.

Clark, Francis Edward.

Clark, John Goodrich.

Clark, J. Ross. American railway builder and mine owner, died at Los Angeles, Cal., September 18. He was born at Connellsville, Pa., in 1851 and moved to the West in 1870 with his brother, William A. Clark, who later became United States Senator and owner of copper mines. At first he was engaged with his brother in the establishment of banks and various mining projects, including the Butte Reduction Works and the Colusa, Parrot and other mines, including the Mayflower, which were extremely profitable to his brother and himself. He was for twenty years vice president of the Los Angeles & Salt Lake R. R., which he built, and was a director of the Citizens' National Bank in Los Angeles, being chairman of the board from 1924.

Clark, William Braddock. Connecticut insurance leader, died at Hartford, Conn., August 6. He was born at Hartford, Conn., June 29, 1841, and was educated at grammar and high schools, entering the fire insurance business at an early age. He was at the time of his death chairman of the board of the Ætna Insurance Company, and a director of the Travelers' Insurance Company, of the First National Bank, and of the Society for Savings.

Clarke, Hugh Archibald.

Clement, Percival Wood.

Clendenin, Henry Wilson. American editor, died at Springfield, Ill., July 19. He was born at Schellsburg, Pa., Aug. 1, 1837, and was educated at private schools and by tutors. He began newspaper work on the Burlington *Hawkeye*, Burlington, Ia., in 1852. During the Civil War he served as a private in the Twentieth Pennsylvania Volunteer Infantry. From 1876 to 1881 he was editor and part owner of the Keokuk, Ia., *Constitution*, and in the latter year became editor and part owner of the *Illinois State Register*. He was a member of the Democratic State committee in Illinois, 1884–88, and a delegate to the Democratic national convention in 1896. He was postmaster of Springfield, 1886–90, and was a member of the board of directors of the Lincoln Public Library of Springfield.

Cluett, Robert. American manufacturer and philanthropist, died at Chicago, Ill., November 24. He was born at Birmingham, England, June 14, 1844, and went to the United States early in life. He was educated at the grammar schools of Troy, N. Y., and at Troy Academy. In 1866, with two brothers, J. W. A. Cluett and George B. Cluett, he founded the shirt and collar manufacturing firm of George B. Cluett, Brother & Company, Troy, N. Y.; after several changes in personnel the firm was incorporated in 1901 as Cluett, Peabody & Company, of which Robert Cluett was vice president until his retirement in 1907. He was formerly president of the National City Bank, of Troy He was a liberal contributor to the public philanthropies of the city, especially to the Troy Young Men's Christian Association, to which he presented a building, and of the Samaritan Hospital, of which he was vice president. He was also an organizer of the Troy Civic League. Mr. Cluett compiled three series of Scripture readings, *Every Morning*, *Day by Day With the Master*, and *Responsive Scriptures*.

Clune, William H. American moving picture producer, died at Los Angeles, Cal., October 18. He was born at Hannibal, Mo., in 1862, and, going to California, in his early life was a railroad engineer. Later he became successful in real estate and establishing a "penny arcade." He became connected with the moving picture industry, and was one of the largest film producers in the United States, being interested in *The Birth of a Nation*, *The Clansman*, *Ramona*, and other productions.

Coates, Florence Earle.

Coco, Adolph Valery. American lawyer, died at Marksville, La., December 23. He was born in Louisiana, Mar. 21, 1857, and was educated at the Louisiana State University, St. Vincent's College and Tulane University, receiving his bachelor's degree in law from the last-named institution in 1881. He was a district judge, 1888–1896, and attorney general of Louisiana, 1916–24. In the last named capacity he was the central figure in the Mer Rouge case, in which members of the Ku Klux Klan were accused of killing two men, mutilating their bodies and casting them into a lake. The case finally was dropped without indictments being found. The original family name of Judge Coco was Baldinodo, of Italian origin, but his grandfather was once a dealer in coconuts, and the name "Coco" was applied to the latter and was retained by the family.

Coffin, William. United States Consul General at Berlin, Germany, died at Berlin, February 13. He was born in Brooklyn, N. Y., Oct. 8, 1877, and was educated at St. Paul's School, Concord, N. H. He was in mercantile life in Tennessee, Kentucky, and New York until 1906, and was appointed American consul at Maskat, Arabia, in that year, serving until 1908, when he was made consul at Tripoli. From 1910 to 1913 he was consul at Jerusalem, and served on special duty in the United States in connection with the Twelfth International Congress of Navigation, Philadelphia, in May and June, 1912. He served as consul general at Budapest, Hungary, from September, 1913, at Christiania, Norway, July 21, 1917, at Stockholm, Sweden, from Nov. 5, 1917, and was appointed to the Department of State, Apr. 1, 1918. On Dec. 1, 1919, he was made consul general at Berlin.

Coghlan, Sir Charles Patrick John.

Coleridge, Bernard John Seymour Coleridge, Second Baron.

Colgate, Austen.

Collingwood, Herbert Winslow.

Collins, Herbert Seward President of the Union Tobacco Company and one of the founders of the United Cigar Stores Company, died at New York, N. Y., September 11. He was born at Albion, N. Y., July 7, 1875, and at the age of 16 became a clerk in the tobacco and cigar store of Whelan Bros, being associated later with George and John F. Whelan in the cigar business in Syracuse, N. Y. In 1901 Mr Collins and the Messrs. Whelan went to New York, where they organized the United Cigar Stores Company, Mr. Collins becoming vice president, and a chain of stores was developed which increased throughout the principal cities of the United States On Jan. 1, 1914, Mr. Collins became affiliated with the Riker-Hegeman Drug Stores, and temporarily resigned the vice presidency of the United Cigar Stores Company. In the summer of 1927 he became president of the Union Tobacco Company, which was organized to serve as a retail outlet for the combined business of the United Cigar Stores Company and the Schulte Stores Corporation and their agencies.

Collins, the Most Rev. Thomas Gibson George.

Colvin, Sir Sidney.

Comer, Braxton Bragg.

Cook, Albert Stanburrough.

Cook, David C. American editor and publisher of Sunday school publications, died July 30. He was born at East Wooster, N. Y., Aug. 28, 1850, and since 1875 had been engaged as an editor and publisher in the preparation of Sunday school works and papers. This business grew very large. Mr. Cook at the time of his death was president of the David C. Cook Publishing Company.

Cornwell, Herbert C. De V. American neurologist, died at Scarsdale, N. Y., April 25. He was born in 1875 and graduated from Harvard College in 1897 and the Harvard Medical School in 1900. He was at one time with the Post-Graduate Hospital, New York, and during the World War served as regimental surgeon of the 316th Infantry, 79th Division. He was twice cited for heroic conduct under fire, and was stationed for a time at a French base hospital He was discharged with the rank of lieutenant colonel.

Cowdray, Weetman Dickinson Pearson, First Viscount.

Coxe, William Griscom.

Craik, Sir Henry.

Crandall, Irving Bardshar. American research physicist and inventor, died at New York, April 22. He was born at Chattanooga, Tenn., May 27, 1890, and after graduating at the University of Wisconsin in 1909 took his master's degree at Princeton University in the following year. He became connected with the Bell Telephone Laboratories, and at the time of his death was a member of the technical staff. He had previously received the degree of Ph.D. from Princeton. He was the author of *Sound and Vibrating Systems*.

Crane, Robert Newton.

Crane, Thomas Frederick.

Crapsey, The Rev. Algernon Sidney.

Creed, Wigginton Ellis.

Crossley, Arthur William.

Crothers, Samuel McChord.

Crumpacker, Maurice Edgar American Congressman, died at San Francisco, Cal., July 24. He was born at Valparaiso, Ind., Dec. 19, 1886. He was educated in the public schools of that city and at Washington, D. C., at the Culver Military Academy, at which he graduated in 1905, and the University of Michigan, where he took the A.B. degree in 1909. He completed the law course at Harvard University in 1912 and entered upon the practice of law in Portland, Ore., in the same year. During the World War he served in the United States army with the rank of captain. In 1921 he was special deputy district attorney for Multnomah County, Oregon, and in 1925 he was elected as a Republican to the Sixty-ninth Congress.

Csernoch, Johann, Cardinal.

Curtis, John. American writer on music, died at Narberth, Pa., April 26. He was born at Philadelphia, in 1868. In 1906 he founded the Philadelphia Operatic Society, which in 1914 was reorganized as the Behrens Opera Club, but it had to be disbanded during the war. Mr. Curtis was the author of a valuable book, *One Hundred Years of Opera in Philadelphia* (1926).

Curwood, James Oliver.

Curzon, Frank.

Cushman, Henry Irving. American Universalist clergyman and former professor of homiletics at Tufts College, died at Providence, R. I., September 15. He was born at Oxford, N. H., in 1844, and at one time was secretary of Dean Academy at Franklin, Mass. For fifty-one years he served as a Universalist preacher in Rhode Island, resigning the pastorate of the First Universalist Church of East Providence in June, 1926. He received the degree of doctor of theology from

Cutler, James Goold.

Cuzanian, Antranik.

Da Cunha, Gastao.

Daggett, Mrs. Mabel Potter.

Dall, William Healey.

Daly, Arnold.

Dalzell, John

D'Amato, Frederico. Assistant professor of architecture of Princeton University, died in New York, October 1. He was born in Italy in 1884, and was educated in Paris, at the École des Beaux Arts, where he studied under Victor La Loux, and where he also taught and practiced until the outbreak of the World War, when he served with the Italian engineers. He joined the faculty of Princeton University in 1926 as assistant professor of architectural design, and later was promoted to a full professorship. Under the terms of his will he bequeathed his property in the United States, including his library on architecture, to Princeton University, to encourage the study of architecture in that institution.

Dana, William Parsons Winchester.

Danilowski, Gustave. Polish novelist and poet, died, October 22. He was born in 1872 and was educated for a literary career, writing novels and poetry in which the struggle for Polish independence was featured. During the World War he served with Marshal Pilsudski's Polish Legion. He was a popular figure throughout Poland for his patriotism and literary attainments, which were widely appreciated.

Davies, Hywel.

Davila, Miguel R.

De Boe, William J. Former United States Senator, died at Marion, Ky., June 15. He was born in Crittenden County, Kentucky, in 1849, and received his education at local schools and at Ewing College, Illinois. He studied law and later medicine, graduating from the medical department of the University of Louisville, Ky., and practiced for a few years. Later he resumed the study of law and was admitted to the bar. He was superintendent of schools in Crittenden County. In 1888 was a delegate to the Republican National Convention in Chicago. He was elected to the State Senate in 1893, and was a candidate for United States Senator in 1895 and in 1896, withdrawing in favor of Dr. William E. Hunter. He was nominated and elected to the United States Senate as a Republican, and served from Mar. 4, 1897, to Mar. 3, 1903.

Deering, Charles. American manufacturer and capitalist, died in Florida, February 5. He was born at Paris, Me., in 1852, the son of William Deering, and graduated at the United States Naval Academy in 1873. He served in the United States Navy until 1881, when he resigned to become secretary of the Deering Harvester Company, which had been established by his father at Plano, Ill. After this business was merged with other leading harvester interests in the International Harvester Company, he became a director of that corporation and was chairman of its board of directors.

Delsor, Nicholas. French clergyman, editor and politician, died at Strasbourg, France, December 20. He was born in 1847. Abbé Delsor had the peculiar distinction of having served in both the German and the French parliaments, as a representative of Alsace. For 30 years he sat in the Reichstag, although he was an opponent of German rule in Alsace-Lorraine. When the two provinces were restored to France after the War, he became a senator from Bas Rhin. He held the office until 1926, when differences with the leaders of the Republican Union party prevented his renomination. He was a chevalier of the Legion of Honor.

Denning, Joseph M.

De Puy, Frank A. American journalist, died April 5. He was born at Lima, N. Y., in 1854, and was graduated at Union College in 1877. He joined the staff of the *New York Times* in the same year, and after several years' experience as a reporter became a Washington correspondent. In 1898 he joined the staff of the *New York Herald*, and returned to the *Times* in 1920. He was one of the founders of the Gridiron Club, Washington, D. C.

De Visme, Henri Pierre Williamson. American educator, died at New Brunswick, N. J, June 22. He was born at Middlebury, Vt., Aug. 20, 1874, and graduated at Middlebury College in 1895, later studying as a graduate student at Princeton, 1900–02. He was a member of the department of romance languages at the University of Chicago, and in the autumn of 1926 went to Rutgers, where he was head of the department of French at the New Jersey State College for Women.

Dewart, the Rev. Murray Wilder. American clergyman, died at Baltimore, Md., December 4. He was stricken as he left his church after morning service, and died almost immediately. He was born at Chardon, Ohio, Feb. 14, 1874, and was educated at the University of Minnesota and at the Episcopal Theological School. After holding charges at Roxbury and Winchester, Mass., he became rector of Christ Protestant Episcopal Church, Baltimore, Md., in 1922. Dr. Dewart was chaplain of the First Massachusetts Field Artillery on the United States-Mexican border in 1916, and of the One Hundred and First United States Field Artillery, in France, 1917–19.

Dickman, Joseph Theodore.

Dickson, Charles. American actor and playwright, died at New York, December 11. He was born at New York in 1860. His family name was Doblin, but throughout his professional career he was known as Dickson. For many years he was one of the most successful light comedians of the American stage, achieving success in support of Stuart Robson, William H. Crane and William Gillette, as well as when starring. He first attracted widespread public notice as Bean, the war correspondent, in Gillette's *Held by the Enemy*. He was one of the authors of the successful musical show, *The Three Twins*, and this proved so profitable that he retired from the stage and turned playwright, for twenty years, returning to the boards in 1926 to take a part in *The Great Gatsby*.

Dillon, John.

Dillon, John Francis.

Dines, William Henry. British meteorologist, died at Wallingford, England, December 24. He was born in 1855. He was on the engineering staff of an English railway as an apprentice before going to Corpus Christi College, Cambridge, where he took his degree in 1881, being a wrangler. From that time until his death he devoted himself to meteorology, winning high honors, especially through his explorations and studies of the upper regions of the air. He was a former president and an honorary fellow of the Royal Meteorological Society and a fellow of the Royal Society.

Dole, The Rev. Charles Fletcher.

Dolgorukoff, Prince Paul Dimitrievich.

Doran, Alban Henry Griffiths. British surgeon, died in August He was born in London in 1849, the son of Doctor Doran, F.S.A., the well known antiquary and editor of *Notes and Queries*. He was educated at Nassau School, Barnes, Surrey, and in 1867 entered St. Bartholomew's Hospital, where he distinguished himself in scholarship. He was admitted a licentiate of the Society of Apothecaries and a member of the Royal College of Surgeons in 1871, and for awhile engaged in teaching, later becoming an anatomical assistant at the Royal College of Surgeons. In 1877 he was elected assistant surgeon to the Samaritan Free Hospital and was associated with several other well known surgeons in the surgical treatment of women. Resigning in 1909, he devoted himself to writing a catalogue of surgical instruments and to literary studies. His publications include: *The Morphology of the Mammalian Ossicula Auditus* (Trans. Linn. Soc.) (1878); *Tumours of the Ovary* (1884); *Handbook of Gynæcological Operations* (1887); *Shakespeare and the Medical Society* (annual oration, Medical Society) (1899); Chapter XIV, *Medicine in Shakespeare's England* (1916); and *Burton (Dr. Slop), His Forceps and His Foes* (*Journal of Obstet. etc. of the British Empire*, vol. 23).

Dowd, William Carey. American newspaper publisher, died at Charlotte, N. C., September 23. He was born near Cary, N. C., Mar. 21, 1865, and graduated at Wake Forest College in 1889. In 1892 he bought the *Mecklenburg Times*, a weekly newspaper which later he consolidated with the *Charlotte Democrat*. In 1895 he acquired the *Charlotte News*, being its publisher at the time of his death. He was a member of the State senate and the assembly, being at one time speaker of the latter body. He was a delegate to the Democratic conventions of 1896 and 1900, and served in the latter year as a Presidential elector from North Carolina.

Drachsler, Julius.

Drew, John.

Droppers, Garrett.

Dumble, Edwin Theodore.

Duncan, Isadora.

Dunn, Arthur Wallace.

DuPuy, Paul Jacques.

Dyer, Brigadier-General Reginald Edward Harry.

Edgar, B. C. American electrical engineer and capitalist, died at his home near Chattanooga, Tenn., December 26. He was born at Rahway, N. J., in 1878, and graduated at Rutgers University in 1900 with the degree of E.E. After doing work in electrical engineering in New York City, California and the Northwest, in 1914 he became general manager of the Nashville, Tenn., Company and the Chattanooga Railway & Light Company, and when these two companies merged with the Chattanooga & Tennessee River Power Company into the Tennessee Electric Power Company, in June, 1922, he became vice president and general manager of the entire system.

Edgerly, Winfield Scott. American soldier, died at Farmington, N. H., September 10. He was born at Farmington, May 29, 1846, and after graduating from the United States Military Academy in 1870 was commissioned second lieutenant in the Seventh Cavalry, serving in this arm of the service through Indian uprisings, the Spanish-American War and the Philippine insurrection. In 1905 he was made brigadier general, and in 1907 was appointed commander of the Department of the Gulf. On Dec. 29, 1909, he was placed on the retired list on account of disability

Egerton, Hugh Edward.

Ehret, George. American brewer, died at New York, January 20. He was born at Hofweiler, Germany, in 1836, and at the age of 21 followed his father, a master brewer, to the United States. Entering the family business, he became a master brewer within a short time and in 1866 established in New York the Hell Gate Brewery, which he developed until it had an annual output of nearly 1,000,000 barrels a year. During the World War, due to Mr. Ehret's absence in Europe, his American property was confiscated by the government under a mistaken belief in his German sympathies, but he actually was in Switzerland, and on his return to the United States resumed possession of his property. He was one of the largest real estate owners in New York City. Mr. Ehret served twice as Presidential elector for the Democratic Party.

Eickemeyer, Carl.

Eigenmann, Carl H.

Einthoven, Willem.

Emard, The Most Rev. Mgr. Joseph Medard. Canadian clergyman, Roman Catholic Archbishop of Ottawa, died at Ottawa, Ontario, March 28. He was born in 1853 and was ordained priest in 1876. He held many important posts throughout eastern Canada, and was for many years connected with the cathedral at Montreal as titular canon. From 1892 to 1922 he served as Bishop of Valleyfield, being chosen first bishop of that diocese when it was created. He was bishop of the Canadian army in the World War. In 1922 he was made Archbishop of Ottawa, a position he held at the time of his death.

Emery, Fred Parker. American educator, died at Hanover, N. H., January 16. He was born at Pembroke, N. H., Apr. 11, 1865, and after graduating at Dartmouth College in 1887 and taking post-graduate work there he studied at the University of Paris and the University of Berlin. Previous to going abroad he had been instructor of English at the Massachusetts Institute of Technology, and on his return from Europe in 1893 he was professor of English at the Pennsylvania State College. In 1894 he was called to Dartmouth as assistant professor in rhetoric and oratory, being made a full professor in 1895. He was for many years one of the most popular and highly esteemed professors at Dartmouth. He wrote: *Notes on English Literature* (1891), and edited an edition of Shakespeare's plays.

English, John Mahan.

Ericson, John Ernst.

Fairchild, Samuel W.

Felter, Harvey Wickes.

Ferdinand, Victor Albert Mainrad. King of Rumania.

Feustman, Leon Philip.

Field, James Alfred.

Fildes, Sir Luke.

Fink, Bruce.

Fish, Frank L. American jurist, died at Palmer, Mass., September 7. He was born at Newfane, Vt., in 1863, and began the practice of law in Vergennes, Vt., in 1890. He served as state attorney of Addison County, Vermont, 1892–1900, and became a national bank examiner in the latter year, holding the position until 1908. He served in the Vermont House of Representatives in 1908 and became a superior judge in 1912, later becoming chief justice of the Supreme Court of the State.

Fisher, Sydney George.

Fisk, Willard Clinton.

Fitzgerald, Martin. Irish publisher, died at Dublin, Ireland, March 9. He was born in 1867, and became publisher of *The Freeman's Journal*, the oldest nationalist newspaper in Ireland, which was subsequently the target for action by the government and others for its comment on British rule. This was particularly the case during the Anglo-Irish disturbances preceding the establishment of the Irish Free State, and the newspaper office was frequently raided. Fitzgerald, the publisher, and Patrick Hopper, the editor, were once imprisoned for their refusal to pay fines imposed under the defense of the realm act. They were later released, and the fines never were paid. Fitzgerald was also known as a race horse owner.

Fitzpatrick, Frederick F.

Fleming, John Donaldson.

Flemming, James Kidd.

Flers, Robert de la Motte-Ango, Marquis de.

Flynn, Edmund James.

Foerster, Adolph Martin. American composer, died at Pittsburgh, August 10. He was born at that city, Feb. 2, 1854. After receiving his first musical instruction from his mother, he attended the Leipzig Conservatory, graduating in 1875. After his return to America he taught one year at the Fort Wayne, Ind., Conservatory, and then settled in Pittsburgh as a teacher of singing and a choral conductor. His works include a violin concerto, numerous pieces for orchestra, chamber music, piano pieces and over a hundred songs.

Forsyth, Robert. American engineer, died at Chicago, Ill., September 11. He was born at Troy, N. Y., Sept. 28, 1849, and graduated at Rensselaer Polytechnic Institute, Troy, in 1869, with the degree of C.E. His professional career was concerned exclusively with the design, construction and operation of iron and steel works. He was superintendent of the steel works of the North Chicago Rolling Mill Company, 1871–83, and manager of the Union Steel Company, 1884–89, and in the latter year he became chief engineer and second vice president of the Illinois Steel Company, serving until 1896, when he retired to become a consulting engineer. He was a member of the board of directors of the John Crerar Library, and a member of the leading engineering and metallurgical societies of the United States and Great Britain.

Foster, Herbert Darling.

Fox, Sir Francis.

Francis, David Rowland.

Fraser, Sir John George.

Frowde, Henry.

Fuchs, Robert, fuks. Austrian composer and teacher, died at Vienna, February 18. He was born at Frauenthal, Feb. 15, 1847, and received his musical education at the Vienna Conservatory, where later he was one of the most distinguished professors, from 1875 to 1912. Among his pupils were Hugo Wolf and Gustav Mahler. His compositions include an opera, *Die Konigsbraut* (Vienna, 1889), a comic opera, *Die Teufelsglocke* (Leipzig, 1893), five serenades for orchestra, much excellent chamber music, and many works for the organ.

Fuertes, Louis Agassiz.

Fuller, Sarah. American educator, died at Newton, Mass., August 1. Miss Fuller, who was a teacher of the deaf, was born at Weston, Mass., in 1836, and was educated in the local schools. In 1869 she became connected with the instruction of the deaf, with a class of twenty pupils from which the Horace Mann School developed. She was associated with Alexander Graham Bell, teacher of the deaf and the inventor of the telephone. She wrote an illustrated primer and a set of phonetic charts which were of great use in the schools. She was the first instructor of Helen A. Keller, the blind, deaf and dumb woman who has achieved distinction for her writings and work in extending and improving instruction for the blind and deaf.

Fulton, John Hamilton.

Gage, Lyman Judson.

Gainsborough, Arthur Edward Joseph Noel, Fourth Earl of.

Gallizier, Nathan.

Galloway, Sir William.

Ganga Ram, Rai Bahadur, Sir Lala. British Indian engineer, died at Golders Green, London, July 10. Born in 1851 in the Punjab, he received his early training at the Thomason Engineering College, Dehra Dam, India, and at the age of 22 entered the Department of Public Works. In 1899 he was made an executive engineer and served in Central India. He was a pioneer in irrigating lands by means of electrical pumping, and he had an active share in promoting great schemes of hydro-electric installations in the Punjab. He gave much help, financial and professional, to the Benares Hindu University. His *Pocket Book of Engineering* is known in many countries. He received a knighthood in 1922.

Gardiner, Harry Norman.

Gardner, Alice.

Garezon, Rear Admiral Pedro. Peruvian naval officer, died at Lima, Peru, May 28. He commanded the Peruvian warships in the naval battle of Angainos between Chile and Peru, in 1879.

Garman, Samuel.

Garrison, Daniel Mershon.

Gary, Elbert Henry.

Gaston, William Alexander.

Gates, Charles Winslow. Former Governor of Vermont, died, July 1. He was born at Franklin, Vt., Jan. 12, 1856, and after graduating at the St. Johnsbury Academy in 1880 became a teacher in the academy of his native town, and then entered business life as a merchant, being active from 1884 to 1913. He engaged in farming also and spent his life on the farm where he was born. He became a member of the Vermont House of Representatives in 1898 and was elected to the State Senate in 1900. He became state highway commissioner in 1904 serving until 1915 when he was elected Governor of Vermont for two years. He was president of the Franklin Telephone Company and a director of the Enosburg Falls Savings Bank and Trust Company, and was president of the board of St. Johnsbury Academy.

Gerhard, William Paul.

Gerry, Elbridge Thomas.

Gibney, Virgil Pendleton.

Gibson, Robert William.

Giegerich, Leonard Anthony. American jurist, died at New York, December 20. He was born at Rotz, Bavaria, Nov. 20, 1855, and was taken to the United States when one year old. He was educated at public and parochial schools, New York City, and at the La Salle Institute, and was admitted to the bar in 1877. After holding various minor offices, he became a judge of the Court of Common Pleas, 1891–95, and when that court was abolished he became a member of the Supreme Court bench of New York State. He served twenty-nine years, until his retirement in 1925. The degree of LL.D. was conferred on him by Manhattan College in 1903 and by St. Francis Xavier College in 1909.

Gilbert, Frank Bixby.

Gilchrist, Thomas Caspar.

Gillmore, James Clarkson. American naval officer, died at Washington, D. C., June 14. He was born at Philadelphia, Pa., July 10, 1854, and graduated at the United States Naval Academy in 1876. He received the Congressional Medal of Honor for his services in the Spanish-American War. In the Philippine insurrection he was held a prisoner by the Filipinos for more than eight months, having been captured with a landing party under his command. He was about to be shot when he objected to having his hands tied for the execution. During the consideration of his objection, word came that a landing party of Americans was moving forward, and the execution was postponed, Lieutenant Gillmore being released later. He was the last commodore in the United States Navy to fly the flag of that rank before it was abolished.

Ginzberg, Asher (Ahad Ha'am).

Girault, de la Corgnals, Father Jean. Roman Catholic priest, died at New Orleans, La., December 12. Father Girault, who spent most of his life among the "Cajuns" of the lower Louisiana parishes, was widely known in connection with his work and responsibilities among the trappers and inhabitants of Southern Louisiana, where he was rector of St. Thomas's Church at Point-à-la-Hache. He came into prominence on the occasion of the Mississippi floods in the spring of 1927, when the levee at Caernarvon was dynamited to save New Orleans. His parishioners had refused to leave their farms and homesteads, and as Father Girault remained with them he not only exercised his ecclesiastical functions, but was appointed deputy sheriff and became the sole enforcer of law of the State as well as for his church. He was also coroner of Plaquemines Parish and superintendent of schools.

Glennan, James D.

Glidden, Charles Jasper.

Godfrey, Charles C.

Goodell, John M.

Goodman, William.

Goodspeed, the Rev. Dr. Thomas Wakefield.

Gordon, George Byron.

Gorguet, Auguste François Marie.

Graaff, Sir Jacobus Arnoldus Combrinck, K.C.M G.

Graham, Maxwell Henry. Canadian naturalist, died at Ottawa, July 5. He was born in England. Going to Canada in 1892, he became connected with the department of the interior as a naturalist in the parks branch. At the time of his death he was head of the wild-life division of the Northwest Territories branch of the department of the interior.

Grant, the Rev. Percy Stickney.

Grasselli, Caesar Augustin.

Gray, Hawthorne C.

Greenhill, Sir George.

Gressman, Hugo.

Grice, Ettalene M.

Griffin, John. New Jersey jurist, died at Jersey City, N. J., January 26. He was born in Jersey City, June 26, 1858, and was educated at the public schools. He was admitted to the New Jersey bar as attorney in 1881 and as counselor in 1884. He practiced in Jersey City, and for many years was counselor to the board of freeholders of Hudson County. On Mar. 20, 1913, he became vice chancellor of New Jersey.

Griggs, John William.

Gross, Harold Judson. American banker and politician, died at Providence, R. I., April 3. He was born in Providence, Apr. 15, 1866, and after receiving a high-school education entered the real estate and insurance business with his brother, George L. Gross. He later became vice president of the Union Trust Company and of the Maiden Lane Realty Company, and a director on various boards, including those of the Industrial Trust Company, the United Electric Railroad Company, the Title Guarantee Company and the Providence Institute for Savings. In 1900 he was aid on the staff of Governor Gregory, and for six years he was colonel of the First Rhode Island Light Infantry Regiment. He was police commissioner of Providence, 1904–10, and lieutenant governor of Rhode Island, 1920–22, but in the latter year, as the Republican candidate for Governor, he was defeated.

Grossman, the Rev. Dr. Rudolph.

Grover, Oliver Dennett.

Gunn, James Newton.

Gutsell, Hiram S. American educator and architect, died at Ithaca, N. Y., September 29. He was born at Delhi, N. Y., in 1856, and was graduated from Syracuse University. He became connected with the Cornell University faculty in 1888, and was for many years a member of the faculty of the college of architecture, retiring in 1922. He designed numerous tablets on the Cornell campus and the seal of the University.

Haanel, Eugene.

Haas, George Christian Frederick. American educator and Lutheran clergyman, died at Staten Island, New York, September 30. He was born at Philadelphia, Pa., May 5, 1854, and was graduated at the University of Pennsylvania in 1876 and four years later at the Lutheran Theological Seminary at Philadelphia. He was pastor of St. Mark's Lutheran Church, New York, and for seven years prior to his death was a member of the faculty of Wagner College, Staten Island. He was president of the Evangelical Lutheran Ministerium of New York, and was one of the editors of the Lutheran League *Hymnal*. He was also a member of the general council of the publication board of the Lutheran Church. He composed the Lutheran League rally hymn.

Hadley, Herbert Spencer.

Hall, William H.

Hall, William Preble.

Hallowell, John White. American administrator, died at Boston, Mass., January 5. He was born at West Medford, Mass., Dec. 24, 1878, and after graduating from Harvard College in 1901 joined the organization of Stone & Webster, becoming a member of the firm in 1912. He was active in business until the World War, when he became assistant to Herbert Hoover, Federal food administrator, serving until March, 1919, when he became assistant to Secretary of the Interior Lane. He was active also in educational and charitable work, being a member of the Commission for Relief in Belgium, of the Educational Foundation, Inc., and an overseer of Harvard College, 1914–20. He was a member of the Harvard Fund Council from 1925 until his death, and was also president of the Associated Harvard Clubs.

Hamerschlag, Arthur Arton.

Hamill, Ernest Alfred. American banker, died at Chicago, Ill., January 14. He was born at Bloomington, Ind., July 1, 1851, but in infancy was taken to Chicago, where the rest of his life was spent. He was educated at the public schools, and his first employment was in a hardware store. After spending some time on the Chicago Board of Trade, on July 16, 1889, he entered the employ of the Corn Exchange Bank, serving as vice president for nine years and as president for twenty years, until the bank was merged with the Illinois-Merchants' Trust Company, where he became chairman of the board. He was vice president of the Elgin National Watch Company and of the Illinois Trust Safety Deposit Company, treasurer of the Chicago Stock Exchange, and a member of the Chicago Board of Trade and the Art Institute of that city. He was active in philanthropic enterprises, being vice president of the board of trustees of Rush Medical College and a trustee of the Presbyterian Hospital and of the Chicago Home for Incurables.

Hamilton, Lord George Francis.

Harden, Maximilian.

Harker, Joseph Cunningham. British scenic artist, died April 16. He was born at Manchester, England, Oct. 17, 1855, and was a member of a theatrical family. He went to London in 1870, and after serving an apprenticeship to T. W. Hall, scene painter, established his own studio, becoming very successful. At one time he was associated with Sir Laurence Alma-Tadema. In 1885–88 he was in the United States, painting huge panoramas, then much in vogue.

Harlan, James S.

Harmon, Judson.

Harrell, Isaac Samuel. American educator, died at New York, May 17. He was born in Gates County, North Carolina, Dec. 29, 1894, and taught at Trinity College and the University of North Carolina before becoming a member of the faculty of the department of history of New York University, in 1924. He wrote *Loyalism in Virginia*.

Harrington, Sir John Lane.

Harrison, Elizabeth.

Hart, Thomas Norton. Former mayor of Boston, Mass., died at Swampscott, Mass., October 4. He was born at North Reading, Mass., Jan. 20, 1829, and after attending country schools went to Boston in 1842. He entered mercantile life, becoming later a partner in the firm of Philip A. Locke & Company, and then founding the firm of Hart, Taylor & Company. He retired from mercantile life in 1879, and from that year until 1903 he was a banker, president of the Mount Vernon National Bank. After serving as a member of the common council and the board of aldermen of Boston, he was elected mayor in 1889 and again in 1890. Ten years later he was again chosen mayor, and also in 1901. He was a candidate for the mayoralty seven times. He was also postmaster of Boston, 1891–93. Mr. Hart's acts of philanthropy were numerous and generous.

Harty, Jeremiah J.

Haslam, Sir Alfred Seale.

Havard, Valery.

Haynes, The Rev. Dr. Lucius M. S. American clergyman, died at Minneapolis, Minn., August 16. He was born in 1838. He was known in many cities of the United States as a minister of the Baptist denomination, and had had charges at Oswego, Watertown, Norwich, Troy and Binghamton, all in New York State, as well as in New York City.

Heath, Perry Sanford.

Hebrard, Émile. French journalist, died April 9. He succeeded his father, also named Émile, as director of the famous newspaper of Paris, *Le Journal*, in July, 1914. His arduous work for France during and after the World War was held responsible for the illness and breakdown which necessitated his retirement from active life eighteen months before his death.

Hecht, Elias.

Heffron, The Right Rev. Patrick Richard. American Roman Catholic clergyman, died at Winona, Minn., November 23. He was born at New York, June 1, 1860. He was educated for business, receiving the degree of Master of Accounts from St. John's College, Minneapolis, in 1878, but studied for the priesthood, and was ordained in 1884. He became pastor of the Cathedral in St. Paul, Minn.; vice rector of St. Paul Seminary, 1896–97, and president, 1897–1910. He was consecrated bishop of the diocese of Winona, Minn., in 1910, and on Nov. 13, 1920, was made an assistant to the pontifical throne in recognition of his work in the diocese.

Hegar, he'gär, Friedrich. Swiss composer, died at Zurich, June 2. He was born at Basel, Oct. 11, 1841, and received his musical education at the Leipzig Conservatory. In 1863 he established himself in Zurich as conductor of the subscription concerts and a choral society, both of which he brought to a high level of achievement. From 1868 to 1906 he also conducted the Tonhalle Orchestra. In 1875 he founded a conservatory, of which he was director until 1914. Among Swiss composers he was one of the most prominent, and his male choruses a cappella have enjoyed an immense popularity.

Helleu, Paul César.

Helm, James Meredith. American naval officer, died at Washington, D. C., October 28. He was born at Grayville, Ill., Dec. 16, 1855, and graduated at the U. S. Naval Academy in 1875. After serving with surveying expeditions in Alaska and on various parts of the Pacific Coast, in 1898 he was in command of the gun-boat *Hornet* and distinguished himself in the Spanish-American War by capturing four vessels. He was in the lighthouse and coast guard service, and in 1908 commanded the battleship *Idaho*. In the latter part of his career he was identified chiefly with the conduct of navy yards and stations. His last active service, until he retired in 1919, was as senior member of the commission on navy yards and stations.

Hemphill, James Calvin.

Henderson, Gerard C. American lawyer, died at Willsboro, N. Y., August 31. He was born at Williamstown, Mass., Aug. 18, 1891, and graduated at Harvard University in 1912, receiving his law degree in 1916. He was admitted to the New York bar in 1920, and was general counsel of the War Finance Corporation, 1921–22, and 1923–25. He wrote: *The Position of Foreign Corporations in American Constitutional Law* (1917) and *The Federal Trade Commission* (1924).

Hendrix, the Rev. Dr. Eugene Russell.

Hengeler, Adolf.

Herbert, Mrs. Victor. Widow of the famous composer, died at New York, February 24. She was born at Vienna, Oct. 15, 1861. Under her maiden name, Therese Foerster, she began her career as a dramatic soprano, and at the time of her marriage in 1886, she was singing at the Stuttgart Opera, while Victor Herbert was a cellist in the orchestra.

Herrera y Pina, the Most Rev. José Juan de Jesús.

Herrin, William Franklin. American lawyer, died at San Francisco, Cal., February 28. He was born near Jacksonville, Ore., Aug. 7, 1854, and was educated at the Oregon State Agricultural College and Cumberland University. He practiced law in San Francisco, and from July 1, 1893, was chief counsel for the Southern Pacific Company, becoming a vice president of the company in March, 1910.

Higgins, James Henry. American lawyer and politician, died at Pawtucket, R. I., September 17. He was born at Lincoln, R. I., Jan. 22, 1876. After graduation at Brown University in 1898, he studied law at Georgetown University, and was admitted to the bar in 1900. He served as a member of the Rhode Island legislature, and was elected Governor of the State for the terms 1907–08 and 1908–09, being the youngest man ever to hold the office

Higginson, Sir George Wentworth Alexander.

Hill, Charles S. American officer of the U. S Marine Corps, died by his own hand at Shanghai, China, September 5. He commanded the Fourth Regiment, United States Marine Corps, there. Colonel Hill was born in New Hampshire in 1867, and served twenty-six years in the U. S. Marine Corps. He was a graduate of both the Army and Navy War Colleges.

Hill, George Andrews.

Hilliard, Robert Cochran.

Hind, Charles Lewis.

Hine, Charles DeLano.

Hine, Francis Lyman.

Hirth, Friedrich.

Hodder-Williams, Sir (John) Ernest.

Hogarth, David George.

Hohenzollern-Sigmaringen, Prince William von. Head of the elder branch of the family which formerly reigned in Prussia, died at Sigmaringen, Germany, October 24. He was born at the castle of Benrath, Mar. 7, 1864, a son of the late Prince Leopold, whose candidacy for the throne of Spain was one of the causes of the Franco-Prussian War, 1870–71. The uncle of Prince William, Prince Charles of Hohenzollern-Sigmaringen, was chosen as Prince (later King) of Rumania, and on his death in 1914 Prince William was the next heir to the throne of that country. He declined it, however, and it went to his brother Ferdinand, who died July 20, 1927. Rumania's action in joining forces against the Central Powers in the War was highly displeasing to Prince William, who returned all his Rumanian decorations and was never reconciled to his brother.

Holiday, Henry.

Hollmann, Joseph.

Horr, the Rev. Dr. George Edwin.

Hough, Charles Merrill.

Howell, William Barberie. American jurist, died at East Orange, N. J., April 4. He was born at Freehold, N. J., July 5, 1865, and graduated in law at Columbian (now George Washington) University, Washington, D. C. After service in the Treasury Department, Washington, in 1897 he became assistant secretary of the treasury in charge of customs. In 1899 he was appointed to the Board of United States General Appraisers, later the United States Customs Court. He was presiding justice at the time of his death and was held to be one of the leading authorities in the United States on customs matters, especially with regard to textiles and wearing apparel.

Humbert, Charles.

Humphreys, Alexander Crombie.

Hunt, Thomas Forsyth.

Huntington, Clarence W. American railroad executive, died at Elizabeth, N. J., July 12. He was born at Newark, N. J., May 31, 1857. His first railroad work was done as a brakeman on the Chicago, Rock Island & Pacific Ry., in 1876. From this he rose through the various grades, and from 1914 to 1917 he was vice president and general manager of the Minneapolis & St. Louis Ry. He then became president of the Virginian Ry., holding the post until 1925, when the road was leased to the Norfolk & Western Ry. He was for many years chairman of the board of managers of the New Jersey state prisons.

Huntington, George Sumner.

Huntington, Henry Edwards.

Huntley, George Patrick. Irish-born actor who appeared in England and America, died at London, England, September 21. He was born at Fermoy, Ireland, of a theatrical family, and made his first appearance at the age of six, at Kilkenny. He was a member of his father's traveling troupe for many years. In 1891 he went to America, in support of Mr. and Mrs. Kendal. In 1901 he made his first great success as a comedian, in the rôle of Lord Plantagenet, in *Kitty Grey*, and thereafter his services were in constant demand by American and British managers, causing him to travel back and forth between London and New York. His last American appearance was in *Gentlemen Prefer Blondes*, in 1926.

Hurd, Henry Mills.

Hussey, Mary Dudley. American woman suffrage leader, died at Orange, N. J., October 26. She was born at New York City, in 1853. She was a pioneer in the woman's suffrage cause, and was one of the founders of the New Jersey Woman Suffrage Association. She received a law degree from New York University in 1898, and also studied medicine and practiced as a physician.

Hutchison, Benjamin Franklin. American naval officer, died at Utica, N. Y., September 17. He was born at Boonville, Mo., Feb. 12, 1868, and graduated at the U. S. Naval Academy in 1889. During the round-the-world cruise of the United States fleet, 1907–08, he commanded the battleship *Wisconsin*, and he commanded the battleships *Kansas* and *Mississippi* during the World War. After the signing of the armistice he served as administrator of floating equipment in New York harbor, and later as chief of staff of the admiral commanding the Pacific fleet. He reached the rank of rear admiral in 1923, and was commandant of the navy yard at Washington, D. C., when he was retired in June, 1927.

Hynicka, Rudolph Kelker. American politician and theatrical promoter, died at St. Petersburg, Fla., February 21. He was born at Myerstown, Pa., July 6, 1859, and received a common school education. After a five-year experience as a reporter on the newspapers of Cincinnati, Ohio, 1881–86, he received his first political office as clerk of the police court of Cincinnati, and thereafter, for more than forty years, he was one of the controlling powers in the political life of the city, as a Republican. From 1906 until his death he was identified with theatrical enterprises, owning or operating about forty theatres in various cities of the United States.

Ide, Fannie Ogden. American author of books for children, died at Brooklyn, N. Y., July 2. She was born at Brooklyn, Dec. 27, 1853, and was educated at private schools in that city. She wrote: *His Little Royal Highness*, (1897); *A Loyal Little Red-Coat* (1889); *A Little Queen of Hearts* (1892); *Courage* (1894); *Little Homespun* (1896); *Tattine* (1900); *Loyal Hearts and True* (1900); *Friendship, the Good and Perfect Gift* (1904); *Little Pierre and Big Peter* (1915).

Ingersoll, George Pratt.

Irish, Benjamin. British sportsman and farmer, died at London, March 15. He was born in 1863, and first came into prominence in the British sporting world in 1921 by winning the Gold Cup Stakes at Ascot. Two years later his horse Papyrus won the Epsom Derby, and in the same year he sent the horse to America to contend in a match race against the famous American thoroughbred Zev. The race was won by Zev by five lengths. Mr. Irish did not cross the ocean to witness the contest. Later he sold Papyrus to J. P. Hornung.

Irizar, Dr. Mario Diaz.

Iveagh, Edward Cecil Guinness.

Jackson, Holmes Condict.

Jackson, William A. American pioneer in the telephone industry, died at New York, November 14. He was born in New York State in 1848, and was taken to Michigan when young. He was in the employ of the Western Union Telegraph Company at Detroit in 1876, when he visited the Centennial Exposition at Philadelphia. There he became interested in the workings of the then newly invented telephone. He was the first president and general manager of the Michigan Bell Telephone Company, and when the company was sold he founded the Detroit Electrical Works, makers of electrical equipment. He was an incorporator of Highland Park, Mich., the site of the Ford industries, and built one of the first trolley lines with underground wires in the United States, to connect Highland Park with Detroit. He later became an official of several telephone companies. He retired in 1913.

James, Walter Belknap

James, William Knowles.

Jeffery, Edward Turner.

Jerome, Jerome Klapka.

Jeserich, Paul. German chemist and criminologist, died at Berlin, November 18. He was born at Berlin, 1854, and was educated at the university of that city. For many years Dr. Jeserich was known as an expert in chemistry, especially as applied to the detection of crime and the apprehension of criminals. He was the first man to employ photography and micro-photography for these ends. He was called frequently "the German Sherlock Holmes."

Joergensen, Haakon. Danish police official, died at Copenhagen, May 9. He was born in 1879. He was honorary president of the international police conference held at New York in September, 1922, a member of the international police commission at Vienna, and a director of the international identification bureau, of Copenhagen. Mr. Joergensen was the inventor of a system of distant identification, by means of which accurate finger print measurements can be telegraphed. It depends on the numbering of the little loops, arches, whorls and other characteristics of the finger print.

Joffe, Adolph Abramowicz.

Johnsen, Einar A. American engineer, died at New York, May 13. He was born at Oslo, Norway (then called Christiania), in 1878, and graduated at Christiania Engineering College in 1902. After three years' work in Norwegian copper mines, he became associated with the late Alfred Noble, consulting engineer for the Pennsylvania R. R. tunnels under the Hudson and East Rivers, New York City. When those tunnels were completed, Mr. Johnsen engaged in similar work at Detroit, Mich. In 1915 he joined the engineering forces of the American Gas & Electric Company, and remained with that company until his death, engaging in the construction of large power plants. He was the chief mechanical engineer of the company.

Johnson, Burt W.

Johnson, William Woolsey.

Johnston, Sir Harry Hamilton.

Jones, Andrieus Aristieus.

Jones, Hugh Bolton.

Jonnart, Célestin Augustin Charles

Jordan, Jules. American composer, died at Providence, R. I., March 5. He was born at Willimantic, Conn., Nov. 10, 1850. He began his career as a concert tenor, having studied at Boston, Paris, and Milan. In 1870 he settled in Providence, where for thirteen years he was choirmaster of Grace Church, and from 1880 on he was conductor of the Apollo Club. His works include a romantic opera, *Rip van Winkle* (Providence, 1897), two ballads for chorus and orchestra, *Barbara Frietchie* and *The Wind-swept Wheat*, a great quantity of sacred music, and many songs.

Joseph, Delissa. British architect, died in January. He was born in January, 1859, and was educated at Durham House School and Jews' College. He designed many public and private buildings in London, and was especially noted for his contributions to the architecture of the synagogue, in London and elsewhere. In 1890 he was elected a fellow of the Royal Institute of British Architects, and he was a member of the council of the institute, 1922–23. He wrote numerous articles, and letters to the London *Times* on the subject of higher buildings for London.

Judson, Harry Pratt.

Kagwa, Sir Apolo.

Kammer, Glenn D. American chemist and engineer, died at Pittsburgh, Pa., November 7. He was born at Ionia, Mich., in 1886, and in 1912 graduated in chemical engineering at the University of Pittsburgh. Entering the employ of the Standard Chemical Company in 1912, he later became assistant director of its radium research laboratory and engaged in the actual refining of radium. In his research work he developed a sensitive phosphorescent zinc sulphide as a base for radium luminous paint. In 1917 he became affiliated with the Radium Dial Company of Pittsburgh, of which he was vice president, director and chief chemist at the time of his death.

Kastalsky, Alexander Dmitrievitch.

Kato, Teikichi, Baron.

Kauffmann, Rudolph.

Kautz, Austin. American naval officer, died at Berlin, Germany, September 10. He was born in Kentucky in 1874, and after graduating at Stanford University in 1893 entered the U. S. Naval Academy. He was commissioned ensign in 1897, and during the Spanish-American War served on Admiral Sampson's flagship, the *New York* During the World War he served on the gunboat *Machias*, a convoy for allied transports in the Mediterranean, and he later commanded the cruiser *Pittsburgh*, the cruiser *Detroit* and the battleship *Wyoming*. After the War he entered the War College at Newport, at which he graduated in 1920. He held the rank of captain, and was stationed at Berlin as naval attaché from April, 1927, until his death.

Keable, Robert.

Kelly, William Joseph.

Kelsey, Francis Wiley.

Keltie, Sir John Scott.

Kemper, Maximilian.

Kenny, Edward. Former Speaker of the New Jersey House of Representatives, died at East Newark, N. J., April 19. He was born at Newark in 1855 and was a graduate of Yale. He held various municipal offices before entering the State Legislature, where after several terms he became Speaker.

Kenyon (Lloyd Tyrell-Kenyon), Fourth Baron. English courtier, died November 29, at Gredington Hall, England. He was born at London, July 5, 1864, and was educated at Eton and at Christ College, Oxford. From 1900 to 1905 he served as lord in waiting to Queen Victoria and King Edward, and in 1916 was lord in waiting to King George. He was lord lieutenant of Denbighshire, pro-chancellor of the University of Wales, and president of the North Wales University College. He was also president of the National Museum of Wales. Lord Kenyon was in America in 1924 as the guest of Kenyon College in Ohio, towards the founding of which his grandfather, the second Lord Kenyon, had contributed £10,000.

Kerfoot, John Barrett. American author and editor, died at London, England, April 17. He was born at Chicago, Nov. 13, 1865, and was educated in Europe and at Columbia University, graduating in 1883. He was literary editor of *Life*, 1900–18, and editor of *Camera Work* since 1905. He wrote: *How to Read* (1916), and *American Pewter* (1923).

Kerr, Lord Walter Talbot.

Kershaw, John Felix.

Kiernan, John A. American livestock expert, died at Washington, December 15. He was born at Jersey City, N. J., in 1873. He graduated at New York University in 1895, and was appointed assistant instructor in the bureau of animal industry in the Department of Agriculture in 1896. From 1917 until his death he had charge of the work of eradicating tuberculosis from the cattle of the United States

Kirk, William Frederick. American journalist and author, died at Chippewa Falls, Wis., March 25. He was born at Mankato, Mich., Apr. 29, 1877, and was educated at the Chippewa Falls High School. He was employed by the Hearst newspaper interests from 1905, and had a wide reputation as a maker of verse (some of it in Scandinavian-American dialect) and as a writer on baseball. Besides several songs, he wrote the following books of verse: *Fleeting Fancies* (1904), *The Norsk Nightingale* (1905); *Right Off the Bat* (1912); *Songs of Sergeant Swanson* (1918); *The Harp of Fate* (1925), and *Forever* (1925).

Kirkwood, Irwin.

Kirlin, J(oseph) Parker.

Knight, Austin Melvin.

Knilling, Eugen von. German statesman and former premier of Bavaria, died at Munich, Bavaria, October 20. He was born in 1865. Von Knilling became premier of Bavaria in 1922, and took a prominent part in the disturbed relations between Berlin and Munich at that time. In November, 1923, at the time of the famous Hitler-Ludendorff "putsch," he attained international prominence. He lost his office until February, 1924, regaining it when the monarchist movement failed.

Knox, William Elliott. American banker, died by his own hand at New York, February 4. He was born at Strabane, Ireland, Oct. 27, 1862, and was taken at an early age to New York He was educated at the public schools of that city. From 1879 to 1885 he was connected with G. W. Carleton & Co., publishers, and in the latter year entered the employ of the Bowery Savings Bank. He rose through various offices until he became president in 1922. He was president of the savings bank section of the American Bankers' Association, 1914–1915, and president of the association, 1924–'25. He delivered addresses and wrote articles on banking and economic subjects.

Koch, kŭᴋ, Friedrich. German composer, died at Berlin, January 30. He was born there, July 3, 1862. His works are masterly in workmanship but lacking in real inspiration, which latter fact militated against them even in his native land. He was better known as one of the foremost teachers of composition, and his success in this field won for him the distinction of election to the Prussian Academy of Fine Arts. He wrote an opera, *Die Halliger* (Cologne, 1897), two oratorios, two symphonies, and several works for chorus with orchestra.

Koehler, Herman J.

Kohns, Lee. American merchant, banker and philanthropist, died at New York, January 18. He was born in Columbus, Ga., Sept. 1, 1864, and moved to New York City at an early age. He graduated at the College of the City of New York in 1884. He was a nephew of Isidor, Nathan and Oscar Straus of New York, and was associated with the firm of L. Straus & Sons, from 1884 to 1923. He was also vice president of Abraham & Straus, Brooklyn, N. Y. He was a director of the Irving Bank-Columbia Trust Company. After his retirement from business in 1923 Mr. Kohns devoted himself to his philanthropies and to educational activities One of his philanthropies was the endowment of a chair of American history, civilization and letters at the Sorbonne, Paris.

Krout, Mary Hannah.

Lacombe, Paul French pianist and composer, died at Carcassonne, in July. He was born there in 1837, and was practically self-taught. His works include three symphonies, a requiem, several masses, and much chamber music.

Ladd, William Whitehead. American lawyer, died in New York, September 12. He was born in 1853. Graduating at the Columbia University Law School in 1875, he entered the law firm of Miller, Peet & Opdyke, of which he long continued to be a member. From 1882 until he retired in 1917 he served as judge advocate general of the National Guard of New York State. He was vice president of the Sons of the Revolution for many years and was governor general of the Society of Colonial Wars for three consecutive terms.

Laffan, the Rev. Robert Stuart de Courcy.

Landsberg, Max.

Lane, James Warren. American financier and manufacturer, died May 22, at St. James, N. Y. He was born in 1864 and graduated at the College of the City of New York in 1884. He was president of E. W. Bliss Company, manufacturers of torpedoes, and was a member of the boards of directors of many other corporations.

Lansdowne (Henry Charles Keith Petty-Fitzmaurice), Fifth Marquis of.

Lapie, lȧ pē, Paul. French educator, died at Paris

January 25. At an international meeting of four hundred philosophers at Harvard University in September 1926, he presented the seventy foreign delegates to the convention. In the same year he completed arrangements with Walter Hulihan, president of the University of Delaware, for selecting a group of students to be sent to France at the end of their sophomore year for their junior year work, for which they were to receive full credit at the University of Delaware. At the time of his death he was rector of the University of Paris.

Latour, Francisco Sanchez.

Laurell, Kay. American actress and film star, died in London, January 31. She was born in 1890 and made her first considerable success in Ziegfeld's Midnight Frolics in New York, before the War, as one of the beauties, and later she played important parts in comedies and motion pictures. Among the plays in which she appeared were *Whispering Wives*, *Quarantine* and *Nocturne*.

Lawyer, George. American lawyer and educator, died at Halifax, N. S., August 14. He was born at New York City, Sept. 24, 1865, and attended Hamilton College, at which he graduated in 1885, and the Albany Law School, receiving his law degree in 1887. He took up the practice of law at Albany in 1890, and in 1908 became a professor at the Albany Law School, continuing in both activities during the remainder of his life. He served as judge advocate of the New York National Guard, with the rank of major, from 1898 until 1918, and in November, 1921, was elected surrogate of Albany County.

Lazaro, Ladislas. American congressman from Louisiana, died at Washington, March 30. He was born near Ville Platte, La., June 5, 1872, and was educated at Holy Cross College, New Orleans, La. Completing the medical course at St. Isadore's College, New Orleans, in 1894, he practiced medicine until 1913. He was a member and president of his parish school board for four years and was interested in farming. He was elected to the Louisiana state senate in 1908 and 1912 without opposition, and was elected to Congress in 1913. He represented his district continuously until his death.

Leaf, Walter.

Lee, Edward W. American surgeon, died at Randolph, N. Y. September 8. He was born at Perrysburg, Ohio, in 1858 and was graduated in medicine at the University of Michigan in 1881, later at the College of Physicians and Surgeons, New York. He specialized in emergency cases and devoted most of his career to railroad surgery, serving for many years with the Erie R. R., and acting as president of the Erie Railroad Surgeons' Association, 1925–1927. During the World War he served as chief surgeon of the base hospital at San Juan, Porto Rico.

Leeds (George Godolphin Osborne), Tenth Duke of.

Lenher, Victor.

Le Queux, William Tufnell.

Leroux, Gaston.

Levermore, Charles Herbert.

Lewis, H. Edwin. American physician and editor, died at Ossining, N. Y., August 6. He was born at Providence, R. I., in 1875. He studied medicine at Brown University and the Vermont Medical School, graduating at the latter institution in 1897. He founded the *Vermont Medical Monthly*, and was its editor for some time. After serving as a member of the Vermont State Tuberculosis Commission, Dr. Lewis was sent as an American delegate to the British Congress of Tuberculosis held in London in 1901. He became managing editor of *The International Journal of Surgery*, published in New York, in 1906, and two years later he became connected with *American Medicine*, of which he was managing editor until his death. He was a former president of the American Medical Editors' Association.

Lewis, Thomas. British astronomer, died June 5. He was assistant at the Royal Astronomy, Greenwich, England, secretary of the Royal Astronomical Society, and joint editor of *The Observatory*. In 1907 he received the Lalande Prize of the French Academy, awarded annually since 1802 to the person who, in France or elsewhere, makes the most interesting research or contributes the most useful memoir of work in the field of astronomy.

Libbey, William. American educator, died at Princeton, N. J., September 6. He was born at Jersey City, N. J., Mar. 27, 1855. He graduated at Princeton University, 1879, and was successively assistant professor of physical geography and of histology, professor of physical geography, and director of the museum of geology and archæology, at Princeton, from 1882 until his retirement in 1928. During the War he was a major in the ordnance department and assistant chief instructor of the small arms firing school. He wrote (with Franklin E. Hoskins) *Jordan Valley and Petra* (1905).

Lines, the Rt. Rev. Edwin Stevens.

Lipsius, Marie.

Liversidge, Archibald.

Lloyd, Alfred Henry.

Lloyd, Edward. British concert tenor, died at Worthington, England, March 31. He was born in London, Mar. 7, 1845, and began his career as a chorister at Westminster Abbey. His fame dates from his appearance at the Gloucester Music Festival of 1871. From that time until his retirement in 1900 he was in constant demand at all the great English festivals, where he created the leading parts in many oratorios, especially in those of Gounod, Sullivan and Elgar.

Lloyd, Marshall Burns. American inventor, died at Menominee, Mich., August 9. He was born at St. Paul, Minn., Mar. 10, 1858, and received a common school education. He made more than two hundred inventions, the most important of which were a combination bag holder and scale, for farmers; a machine for weaving bed springs; a new method and machinery for making thin, seamless steel tubing, and a new method of producing articles of wicker, including a loom for speedy weaving.

Loew, Marcus.

Loewenfeld, lĕ'vĕn-fĕlt, Alfred von. German army officer, died at Berlin, December 2. He was born at Spandau, Prussia, Oct. 17, 1848, the son of Gen. Julius Loewenfeld, also an infantry commander. After receiving his education at the gymnasiums at Berlin and Frankfort, and his military training at the Potsdam Military School, he was commissioned as a lieutenant in the Prussian Guards Regiment in 1868, and served with the regiment during the Franco-Prussian War. After commanding the palace guards and other units, he became a major general in command of the thirty-third infantry division in 1900. From 1901 until he was pensioned in 1913 he was a personal attendant of the Kaiser and an officer of the general staff. He was invited to attend the formal opening of Carnegie Institute in 1907, and received an honorary degree from the University of Pennsylvania on the occasion of that visit. During the War he was recalled, to serve in command of the "Garde Corps," and he received the Iron Cross of the First Class from the Kaiser.

Long, John Luther.

Low, Juliette. Founder of the Girl Scouts of America, died at Savannah, Ga., January 17. She was born at Savannah in 1860, the daughter of the late Gen. W. W. Gordon and Eleanor Kinzie Gordon. She was the widow of William Low of London, England, and Savannah. She organized at Savannah, in 1912, the first troop of Girl Scouts, similar to the Girl Guides of England, and served as president of the Girl Scouts of America for several years. When she retired from active duty as president the position of founder was created for her.

Lowell, Guy.

Luckenbill, Daniel David.

Ludington, Charles Henry.

Luzzatti, Luigi.

Lyford, Ralph.

Lyman, Hart. American journalist, died at New York, October 30. He was born at Plymouth, Conn., Dec. 8, 1851. He graduated at Yale in 1873, and studied at the Universities of Berlin and Heidelberg, 1874–75. In 1875–76 he studied law at Minneapolis, Minn., but gave up the law to become a member of the editorial staff of the *New York Tribune*. In 1888 he became an editorial writer on the same newspaper, and in 1905 when Whitelaw Reid left the chair of editor-in-chief to become ambassador to Great Britain, Mr. Lyman succeeded him. He retired in 1913. Mr. Lyman served for a year as Isaac H. Bromley Lecturer at Yale University, delivering a series of lectures on journalism.

Lynn-Jenkins, Frank.

Maas, Anthony J.

Mabery, Charles Frederick.

MacAlpine, John H. Scotch marine engineer, died at Mount Vernon, New York, May 31. He was born in Paisley, Scotland, in 1859, and was educated at the University of Glasgow. Going to the United States in 1892 to be superintendent of the Dry Dock Engine Works of Detroit, he subsequently was four years at the U. S. Navy Bureau of Steam Engineering, Washington, D. C. He returned to Scotland where he made a study of the vibration of steamships, and in 1902 going back to the United States he supervised the completion and conduct of the trials of the United States destroyers *Hopkins* and *Hull* for Harlan and Hollingsworth, of Wilmington, Delaware. In 1904 he entered into partnership with his former chief, Admiral Melville, as consulting engineers and naval architects, in the service of which he developed the reduction gear for marine turbines. In 1906 he went to Pittsburgh where, for the rest of his life, he was engaged with the Westinghouse interests in consulting work. He was a member of the Institution of Naval Architects; of the Institution of Engineers and Shipbuilders, of Scotland; and of the Society of Naval Architects and Marine Engineers, New York.

McCausland, Brigadier General John. Confederate soldier, died January 22, at McCausland, West Virginia. He was born in St. Louis, Mo., September, 1836, and was educated at the Virginia Military Institute, where he was graduated at the head of his class in 1857 and later became assistant professor of mathematics, and was assistant to Thomas J. ("Stonewall") Jackson. Entering the Confederate service he organized forces in the Kanawha Valley. On May 18, 1864, he was made a brigadier general, and, at the time of his death, was one of the last two surviving of the Confederate Army general officers.

McCook, John James.

McCune, A. W. American pioneer, died at Cannes, France, March 28. Born in Calcutta, India, in 1849, he went to Utah at the age of eight. On his father's ranch he herded cattle and sheep and fought against the Black Hawk Indians when only fourteen years old. As a railway contractor he participated in building the Union Pacific, and later became interested in mining in British Columbia. He engaged in the timber industry in Montana, and later bought an interest in the Cerro de Pasco mines in Peru. In 1889 he was defeated for the United States Senate from Utah.

McDaniel, George White.

McDonald, Howard.

McEvov, Ambrose.

Mach, Edmund (Robert Otto) von.

McKean, Horace Grant.

McKenzie, Donald Duncan.

McLouth, Lawrence Amos.

McMillan, Charles. American engineer and educator, died at Princeton, N. J., September 19 He was born at Moscow, Russia. Mar. 24, 1841. He graduated at Rensselaer Polytechnic Institute, Troy, N. Y., in 1860 with the degree of C.E., and was assistant engineer, first of the Brooklyn, N. Y., water works and then of the Croton water works, New York City, 1860–65. In the latter year he became professor of road engineering at Rensselaer, and in 1871 professor of civil and mechanical engineering at Lehigh University. In 1875 he went to Princeton University as professor of civil engineering and applied mathematics and head of the university's civil engineering department, and remained in that position until his retirement in 1914, when he became professor emeritus. For many years he was the editor of *Smith's Topographical Drawing*.

MacPherson, Charles.

MacPherson, Maj.-Gen. Sir William (Grant).

McRae, Bruce. American actor, died at New York, May 7. He was born in India, of English parents, Jan. 15, 1867, and was the nephew of Sir Charles Wyndham, English actor, and of Bronson Howard, American dramatist. He made his first appearance on the stage Oct. 5, 1891, at Proctor's Twenty-Third Street Theatre, New York, in *Thermidor*, and thereafter had a uniformly successful career. He acted generally in society rôles. Among the well known actors and actresses whom he supported at various times were Marie Burroughs, Olga Nethersole, Herbert Kelcey and Effie Shannon, William Gillette, and Ethel Barrymore. His last appearance was in *The Legend of Lenora*, in 1927.

McShane, the Rev. Daniel L. American Roman Catholic missionary, died at Loting, China, June 4. He was born at Columbus, Ind., Sept. 13, 1888, and studied at St. Joseph's College, Rensselaer, Ind., and at St. Mary's Seminary, Baltimore, Md., and was the first priest to be ordained from the Maryknoll Seminary, Maryknoll, N. Y., Nov. 10, 1914. After filling several positions in the homeland he was assigned to mission work in China in 1919. In 1920 he was appointed pastor of the mission of Loting, in Kwangtung Province, South China, which became the nucleus of a strong Christian settlement. He died from smallpox, which he contracted from a Chinese waif whom he had rescued and baptized.

Madge, Sir William Thomas.

Magee, Walter Warren. American Congressman, died at Syracuse, N. Y., May 25. He was born at Groveland, N. Y., May 23, 1861, and was educated at Phillips Exeter Academy and at Harvard, graduating at the latter institution 1889. He was admitted to the bar in 1891, and practiced law in Syracuse. He was a member of the board of supervisors of Onondaga County, N. Y., 1892–93, and corporation counsel for Syracuse, 1904–1914. He was elected to the Sixty-fourth Congress in 1915 as a Republican, from the Thirty-fifth District, which he represented until 1927.

Mallory, Marshall Hubert. American publisher, died at New York, September 21. He was born at Watertown, Conn., in 1843, and graduated at the Rensselaer Polytechnic Institute, Troy, N. Y., with the degree of civil engineer, but never practiced his profession. He traveled extensively abroad and later joined his brother, the Rev. George S. Mallory, in reviving *The Churchman*, the national Episcopalian weekly which was established in 1805, and with which he was connected for nearly fifty years, until his retirement in 1912.

Maltzan, Adolf Georg Otto (Ago), Frieherr von (Baron Maltzan).

Manly, Charles Matthews.

Manouvrier, Leonce Pierre.

Manville, Charles B. American manufacturer, died at Pleasantville, N. Y., November 26. He was born at Watertown, N. Y., Dec. 16, 1834. He went to Milwaukee, Wis., in early manhood. While engaged in tailoring there he made experiments with a covering for heat-conveying pipes; at first he used a mixture of shoddy and clay, and when this proved successful he formed the Manville Covering Company for its manufacture. Later he developed the asbestos-magnesia covering, consisting of 15 per cent asbestos and 85 per cent magnesia, which is considered the standard. In 1900 Mr. Manville established the headquarters of his enterprises in New York and purchased the H. W. Johns Company, a rival. The company is now The Johns-Manville Corporation, a manufacturing concern of world-wide scope.

Mapleson, Col. Henry. British operatic impresario, died at Lausanne, Switzerland, September 27. He was born in London, Feb. 16, 1851. Destined originally for the army, he preferred to become associated with his father, the famous Col. James Henry Mapleson, as manager of Italian opera at Drury Lane and Covent Garden, London, and the Academy of Music, New York. In 1877 he married the French singer, Marie Rôse, from whom he was divorced.

Markievicz, Constance Georgine, Countess de.

Marshall, Charles Edward.

Marshall, Henry Rutgers.

Marshall, James Rush. American architect, died at Washington, D. C., June 2. He was born at Carlisle, Pa., Oct. 30, 1851. He spent three years with the class of 1871 at Rutgers College, and from 1871 to 1883 was in the office of the supervising architect of the Treasury Department, Washington, D. C. In 1883 he founded, with the late Joseph C. Hornblower, the firm of Hornblower & Marshall. He was the architect of the custom house, Baltimore, Md., the new National Museum building, Washington, D. C., the Army and Navy Club in Washington, and many private dwellings.

Martin, Victoria Claflin Woodhull.

Martiny, Philip.

Masterman, Charles Frederick Gurney. British statesman, author and journalist, died in London, November 17. He was born in 1873, attended Weymouth and Christ's College, Cambridge, and after an unsuccessful attempt to enter Parliament in 1903 was returned for West Ham (North) on the strong Liberal tide of 1906. In April, 1908, he was appointed Parliamentary Secretary of the Local Government Board and in July, 1909, he was transferred as Under-Secretary of the Home Department. Unseated in 1911 on petition, owing to irregularities of his agent, he was returned again in 1912 from South-West Bethnal Green, and in the same year was promoted from the Home Department to the post of Financial Secretary of the Treasury. In recognition of his services to Lloyd George in passing the National Health Insurance scheme he received appointment as Chairman of the National Insurance Commission in 1914 and in the same year attended Cabinet rank as Chancellor of the Duchy of Lancaster. Standing for the necessary re-election, he was defeated in a contest over the Ulster question, and failed again a few months later at Ipswich. Mr. Asquith, however, refused to accept his resignation, and he continued to serve until 1915, when his resignation was reluctantly accepted with the request that he serve on the Government Committee for the Relief of Distress, the Prince of Wales' Fund and other special committees on which he had served since the outbreak of the war. He was connected with Lord Beaverbrook in war propaganda, serving as Director of Wellington House (Propaganda Department,) from 1914 to 1918. In 1923 he was returned to Parliament for the Rusholme Division of Manchester, but in the reëlections of the following year the ill-luck which had attended his career returned and he lost his seat. He attained some prominence as a publicist, although his support of Lloyd George and the Liberal Party in the latter years of his life cost him political friend-ships and journalistic associations His publications included. *Tennyson as a Religious Teacher*, 1899; *The Heart of the Empire*, 1901. *From the Abyss*, 1902; *In Peril of Change*, 1905: *F. D Maurice*, 1907; *The Condition of England*, 1909; *The New Liberalism*, 1920; *How England is Governed*, 1920; and *England after War*, 1922.

Mathers, Thomas Graham.

Mathis, June (Mrs Sylvano Balboni) American actress and moving picture scenario writer, died at New York, July 26. She was born at Leadville, Colo., in 1892. She began her professional career as a vaudeville and musical comedy actress, and turned her attention to the motion picture field when the "feature" pictures made their appearance Her first great succes was achieved with the adaptation of *The Four Horsemen of the Apocalypse*, by Ibáñez, and at the time of her death she was planning the "picturization" of another book by Ibáñez She was credited with the discovery of the talent of the late Rudolph Valentino, moving picture actor.

Matthews, Nathan. American lawyer, four times mayor of Boston, Mass., died at Boston December 11. He was born at Boston, Mar. 28, 1854. He graduated at Harvard in 1875 and studied also at the University of Leipzig. He practiced law at Boston since 1880 and was elected four times to the mayoralty, in 1891–95. He served on several important municipal commissions, and was special counsel for the United States Railroad Administration, 1917–19 He lectured at Harvard on government, 1909–10 and 1911–12. The university conferred the degree of LL D. on him in 1909. He wrote *The City Government of Boston* (1895) and *Municipal Charters* (1914).

May, David. American merchant and head of a chain of department stores, died suddenly at Charlevoix, Mich., July 22. He was born at Kaiserslautern, Germany, in 1848, and went to the United States at the age of sixteen. Subsequently he founded a store in St. Louis which was capitalized at $30,000,000 in 1927, with branches in various cities in the United States and Europe

Maxim, Hudson.

Meara, Frank Sherman.

Megrue, Roi Cooper.

Mellen, Charles Sanger.

Mendes, Frederick de Sola.

Metcalf, James Stetson.

Miethe, Adolf.

Miller, Charles. American oil pioneer, died December 20 at Franklin, Pa. He was born of Huguenot parentage in Oberhoffen, Alsace, on June 15, 1843, and went to America with his father at the age of eleven, settling in Erie County, N. Y. After working as a clerk he joined the 74th Regiment, New York National Guard, in 1861, and later became commander of the Pennsylvania National Guard with the rank of major general. He was a member of the Pennsylvania State Board of Charities and was twice mayor of Franklin. While still a young man he engaged in oil production and was one of the pioneer producers in the Franklin district, being a founder of the Galena Signal Oil Company and an official of numerous other oil companies. He was builder and president of the Lake Erie, Franklin & Clarion Railroad, and was a director in many corporations. He also operated several famous stockfarms and had received numerous prizes in cattle exhibitions. Throughout his life he was interested in religious work, having conducted a Bible class which at one time numbered 1000 members and since 1890 he maintained the Miller Night School at Franklin at his own expense.

Miller, Charles R.

Miller, Louis E. American Jewish journalist, died at New York, May 22. He was born at Vilna, Russia, in 1866 and was educated in Moscow. He arrived in the United States at the age of seventeen, and soon became identified with Jewish publications. He was founder and first editor of *The Daily Forward*, New York, and he established the first Jewish morning tabloid newspaper. With a boyhood background of oppression in Russia, he found his most active field of public work during the World War, when he labored to wean the Jews of the east side of New York City from their hatred of Russia and consequent sympathy for the Central Powers. In politics he was a Socialist.

Minotto, Countess Agnes.

Mitchel, Ormsby MacKnight. American produce merchant, died at Rye, N. Y., October 2. He was born at New York in 1864. At the outbreak of the World War, his expert knowledge of the purchasing of grain won for him the appointment as purchasing agent of the French High Commission. He kept the French army and nation supplied with grain, which had become increasingly unavailable from home sources because of the War demands on agricultural land. When the United States entered the War he was made general grain purchasing agent for the Allies extending his activities to every Allied country.

Mitchell, Edward Page.

Mitchell, John J

Mittag-Leffler, Magnus Olof

Molkenbuhr, Hermann German Socialist died December 22 at Berlin Born at Wedel in Schleswig-Holstein in September, 1851, he became identified with the Socialists in his youth. He was a member of the Congress at Gotha in 1875 at which the followers of Marx and Lassalle joined forces, and in 1881 was forced to leave Hamburg to escape the activity against the Socialists He went to America where he worked in tobacco factories until 1884, when he returned to Germany and again identified himself with the Socialist party, being elected to the Reichstag in 1890. In the same year he became editor of the *Hamburger Echo* to which he had contributed for years, and with which he remained until 1904, when he was appointed secretary of the executive committee of the Socialist party. He frequently served as a delegate to international congresses of his party and continued as a member of the Reichstag, in which he was known as an authority on social legislation, until his retirement in 1924. During the German revolution in November, 1918, he assisted the Kaiserin in escaping across the German border into Holland.

Mollenhauer, Emil.

Moncrieff, Robert Hope. British author and editor, died at London, August 10. He was born at Edinburgh in 1846, and was educated privately. He studied for the bar of Scotland and also took up teaching for a time, but he abandoned these occupations in favor of writing. He used several pen names the best known being "Ascott R. Hope," and he published *The World of Today*, *Bonnie Scotland*, and about 200 volumes of fiction and history, with schoolbooks, guide books, and others.

Monroe, Harriet Earhart. American lecturer and religious worker, died at Washington, D. C., July 16. She was born at Indiana, Pa., in 1842, and educated privately. She was president of the Atchison Collegiate Institute in Kansas. She wrote and lectured on travel and historical subjects, her works including *The Art of Conversation*, *Historical Lutheranism*, *History and Dramatization of the Life of Gustavus Adolphus;* and *Twice-Born Men in America.*

Montgomery, Dr. Edward Emmet American gynæcologist, died at Philadelphia, Pa., April 17, He was born at Newark, Ohio, May 15, 1849, and was educated at Denison University and the Jefferson Medical College, Philadelphia. He joined the faculty of the latter institution in 1892. He was the author of several textbooks, the most widely known being *Practical Gynæcology* (4 eds), and *Care of the Patient Before, During and After Operation in Gynæcology and Abdominal Surgery* (1917)

Moor, Sir Frederick Robert. South African miner, farmer and statesman, died at Estcourt, Natal. March 18. He was born at Hermannsburg, Natal, in 1853, and was educated in his home town In 1872 he was a diamond digger in the Kimberley mines, and was twice elected by his fellow miners as member of the Kimberley Mining Board. He returned to Natal in 1880, settling down to farming, which occupation he followed until his death. He was elected a member of the Legislative Assembly in 1886, and was one of the party which carried responsible government for Natal. He was prime minister of Natal, 1906–10. He received a knighthood in 1911, and was granted the freedom of the cities of London, Manchester and Bristol, England.

Moore, Fred Wadsworth. American athlete and manager, died at Cambridge, Mass, May 29. He was born at Independence, Iowa, in 1870, and graduated at Harvard University in 1893. He practiced law in Boston since 1896. When at Harvard he was manager of the football team for two seasons, and from 1913 was graduate treasurer of athletics.

Moore, Willis Luther.

Mordecai, Samuel Fox American lawyer and educator. died at Durham, N. C., December 29. He was born at Richmond, Va., Dec. 12, 1852. He was educated at the University of Virginia, and was admitted to the bar of North Carolina in 1875. He was a member of the law firm of Battle & Mordecai, 1876–1904. He became a lecturer on law at Wake Forest College in 1900, and in 1904 went to Trinity College, North Carolina (now Duke University), as dean of the law school. He held the position until his death. In 1911 Trinity College conferred on him the degree of LL.D. He wrote: *Mechanics Liens* (1897): *Negotiable Instruments Law in North Carolina* (1899); *Lex Scripta* (1905); *Mordecai's Law Lectures* (1907): 2d. ed., 1915); (with Prof. A. C. McIntosh) *Case Book on Remedies* (1910); *Mordecai's Law Notes* (1912–13); (additions to same, 1914–1919); *Questions and Answers on Real Property* (1922); *Questions and Answers on Second Book* (1923).

Morgenthau, Mengo L. American merchant, died at New York, May 12. He was born at Mannheim, Germany, in 1860, and when he was six years of age he was brought to America. He was educated at the College of the City of New York. For several years he was engaged in the dry goods business, farming and teaching school, before taking up the candy trade. In 1896 he opened his first store in New York and at the time of his death he controlled twenty-nine Mirror candy stores.

Morrison, Charles Walthall. American musician, died at Oberlin, May 16. He was born at Covington, Ky., in 1856, and received his musical education at Oberlin, Leipzig and Berlin. In 1880 he joined the faculty of the Oberlin Conservatory of Music, becoming director in 1902.

Morrison, H. A. C. American portrait painter, died at Atlanta, Ga., October 1. He was born on Prince Edward Island, Canada, in 1853. His paintings are to be found in many Southern homes and in the State capitol, Atlanta, Georgia.

Morse, Charles Henry. American organist, died in Boston, June 4. He was born at Bradford, Mass., Jan. 5, 1853, and studied at the New England Conservatory of Music. From 1875 to 1884 he was professor of music at Wellesley College. Then he settled in Minneapolis, where he founded the Northwestern Conservatory of Music, of which he was director until 1891 From 1891 to 1899 he was organist of Plymouth Church, Brooklyn. In 1901 he became musical director at Dartmouth College, and was made full professor of music in 1916, being the first to hold the chair. He composed some church music, and edited several collections of works for the organ.

Morss, Charles Anthony.

Moyes, Canon James.

Muir, Joseph Johnstone.

Muldoon, Rt. Rev. Peter.

Murphree, Albert Alexander.

Myrick, Herbert.

Nabokoff, M. Constantine.

Nash, Arthur. American merchant, died at Cincinnati, Ohio, October 30. He was born in Tipton County, Indiana, June 26, 1870, and was educated at Greentown, Ind. At one time a clergyman, he abandoned the pulpit to enter clothing manufacturing. He developed a plan of coöwnership of industry by workers; and he was the author of *Golden Rule in Business* (1923).

Nathan, Dr. Paul. Jewish educator, died at Berlin, Germany, March 15. He was born in Germany in 1856, and for many years was one of the outstanding Jewish leaders and social workers in Germany. He played an important part in the formation of the school system in Palestine. He visited the United States in 1910.

Naumberg, Hirsh David.

Nelson, Adolphus P. American banker and politician, died at Grantsburg, Wis., August 21. He was born at Holmes City, Minn., Mar. 28, 1872. He was graduated at Hamline University, 1897. He was president of the First Bank of Grantsburg from 1896 until he died. In 1917 he was elected to Congress to fill the unexpired term of I. L. Lenroot. He was a member of the La Follette bloc and managed the La Follette presidential campaign in 1924. In 1919 he received the degree of LL.D. from Upper Iowa University.

Newton, Arthur. American astronomer, died at Washington, D. C., January 25. He was born at Oxford, Ohio, in 1868. He was associate astronomer at the United States Naval Observatory for more than 20 years. His article, "The Orbit of the Satellite of Neptune," was published by the Royal Astronomical Society of London and in the papers of the *American Ephemeris*.

Nicholls, The Rev. Dr. Samuel T. American clergyman, died at Philadelphia, Pa., November 19. He was born at Bristol, England, Dec. 23, 1867. Shortly after his ordination he went to America. He was pastor of the First Primitive Methodist Church in Philadelphia from 1890 until his death. In 1923 he was elected president of the General Conference of the .Primitive Methodist Church.

Nichols, Lieut.-Col. Henry J.

Nicholson, Joseph Shield.

Nugent, James R. American politician, died at Trenton, N. J., April 26. He was born at Newark, N. J., July 26, 1864, and was graduated from Seton Hall College in 1882. He was admitted to the bar in 1893. In 1903 he became leader of the Democrat party in Essex County and held that post until 1925. At one time he led in the movement to elect Woodrow Wilson as Governor of New Jersey, but later he came into national prominence as an opponent of Mr. Wilson.

Nungesser, Captain Charles.

Nutting, Charles Cleveland.

O'Brien, Edward Charles.

O'Connell, Dennis Joseph.

O'Connor. John J. Bishop of the Roman Catholic Church, died at Newark, N. J., May 20. He was born June 11, 1855, at Newark, and was educated at Seton Hall College, N. J., the American College at Rome and the University of Louvain He was ordained priest in 1877, and was professor of philosophy and theology at Seton Hall College and Seminary 1878–1895. He became pastor of St. Joseph's Church, Newark, in 1895, and was consecrated bishop of Newark July 25, 1901.

O'Donnell, Patrick

O'Higgins, Kevin Christopher.

Oliver, John.

O'Mara, Joseph.

O'Neil, Charles.

Ono, Yeijiro.

Operti, Albert.

Orndorff, William R

Ospina, Gen. Pedro Nel.

Osterhaus, Hugo.

Osterholm, Dr. Martin. American educator, died at Tiffin, Ohio, December 10. He was born at Warburg, Sweden, Aug 13, 1863, and went to the United States in 1882 He was a graduate student at the universities of Nebraska, Chicago and Yale He was a member at various times of the faculties of Bethany College, Cotner University and Carthage College before becoming professor of modern languages at Heidelberg College, Ohio.

O'Sullivan, The Most Reverend Charles. Irish bishop, died at Killarney, January 28. He was born in East Kerry in 1862 and was educated at the Killarney Seminary. He was dean of Kerry from 1907 till he became Roman Catholic Bishop of Kerry and Aghadoe in 1917.

Outcalt, Miller. American jurist, died at Cincinnati, Ohio, January 13. He was born and educated in Cincinnati Admitted to the bar in 1876, he became prosecuting attorney three years later, and had William H. Taft as his first assistant. He was elected Judge of the Common Pleas Court in 1888.

Paine, Willis Seaver.

Palmer, William Pendleton.

Paz y Melia, Antonio.

Peabody, Francis Weld.

Peach, Gen. Benjamin Franklin, Civil War veteran, died at Swampscott, Mass., May 26. He was born at Marblehead, Mass., Oct. 17, 1838. He was for many years active in the Massachusetts Volunteer Militia.

Peay, Austin.

Peck, Charles Howard. American surgeon, died at Newtown, Conn, March 28. He was born at Newtown, June 18, 1870, and graduated at the College of Physicians and Surgeons, Columbia University, 1892. Since 1895 he had been a practicing surgeon in New York City. He held the rank of colonel in the Medical Corps during the World War, and organized and directed the 3000-bed base hospital at Chaumont, France. He was appointed senior consultant in surgery of the American Expeditionary Forces. The Distinguished Service Medal was awarded to him in 1919. The contributions of Dr. Peck to the surgical literature of his day were numerous, covering especially abdominal surgery.

Pedrick, Col. William E. American artist, died in Trenton, N. J., August 11. He was born in 1868, and was educated at Princeton College. He was noted especially for his historical paintings, and was head of the School of Industrial Arts since 1922. For over 30 years he was connected with the New Jersey State National Guard.

Peet, Dr. Walter B. American rowing coach, died at Hammonton, N. J., June 22. He was born at New York, and after studying at Columbia University, became coach for its crews. He took a prominent part in laying out the course for the intercollegiate regatta at Poughkeepsie, N. Y. He was a practicing physician at one time and also wrote extensively on rowing matters.

Pendl, Emanuel.

Perl, Felix.

Pernot, Emile F. American pathologist died at Portland, Ore., February 2. He was born at New York in 1859, and was educated at Yale. For 35 years he made a study of tuberculosis, and in 1900 received the award of honor at The Hague Tubercular Congress for having been the first scientist to isolate the tubercular germ in poultry. For many years he conducted tuberculosis research work at the experimental station at Corvallis, Oregon.

Perry, The Rev. James De Wolf.

Pettis, Clifford Robert. American forester, died at Albany, N. Y., January 29. He was born at Delancy, N. Y., Aug. 10, 1877, and was graduated at Cornell University in 1901. In 1902 he became State Forester of New York. He was a national authority on reforestation, and developed the largest nursery of tree seedlings in the world, at Saratoga Springs, N. Y.

Mr. Pettis was originator of a forest fire-control system. His work, *Bulletin of Forest Nursery Practice*, was adopted as the handbook of the U. S. Forest Service

Peugeot, Pierre French manufacturer, died at Paris, November 26. He was born near Paris in 1869. In addition to managing the affairs of one of the largest automobile plants in Europe, he was active in the social organization of his company's workers. He was a Commander of the Legion of Honor and mayor of the industrial town of Herimoncourt.

Pfister, Charles F. American financier, died at Milwaukee, Wis, on November 12. He was born at Milwaukee in 1859, and was educated in the University of Wisconsin. For many years Mr. Pfister was regarded as one of the outstanding figures in the business life of Milwaukee, and had numerous large interests.

Phillips, Clarence Coles. American artist, died at New Rochelle, N. Y., June 12. He was born at Springfield, Ohio, in 1882, and was educated at Kenyon College. His drawings in *Life* and his magazine covers attracted much notice, and he was one of the first artists to illustrate advertisements for widely known products.

Pierce, Henry Clay.

Pina, Juan José de Jesús, Herrera y, see Herrara.

Plummer, Charles.

Pollard, Edward Bagby. American educator and author, died at Chester, Pa., July 13. He was born at Stevensville, Va., Oct. 9, 1864, and graduated at Richmond College in 1884. He then entered the Southern Baptist Theological Seminary at Louisville, Ky., at which he was graduated in 1890. He also studied in the graduate department at Yale and at the University of Berlin. He was ordained in 1890, and his first pastorate was at New Haven, Conn. In 1902 he went to Georgetown, Ky., College, serving as professor of biblical literature and as pastor of the church there. Four years later he went to Crozier Theological Seminary at Chester. Pa., where he remained until his death. He wrote *Paul Judson* and *Semitic and Oriental Women*.

Potter, Charles Nelson. American jurist, died at Cheyenne, Wyo., December 21. He was born at Cooperstown, N. Y., Oct. 31, 1852, and was graduated at the University of Michigan in 1873. In that year he was admitted to the bar, and he settled at Cheyenne in 1876. He was elected a justice of the State supreme court in 1894, and was chief justice from 1905 until his death.

Potthast, Edward Henry.

Potts, Capt. Templin Morris.

Pounds, Charles Courtice.

Powell, Charles W. American botanist, died at Balboa, Canal Zone, August 18. He was born in St. Louis, Mo., in 1854, and was educated in the public schools of his native city. Mr. Powell studied orchidology for half a century, and spent many years in the Canal Zone. The Powell Orchid Garden in Balboa is a unique institution in tropical America. Several rare varieties of orchids discovered by Mr. Powell bear his name.

Powell, George Townsend.

Power, Frederick Belding.

Prather, J. Frank. American cattle breeder, died at Williamsville, Ill., May 12. He was born in 1863 at Chicago. He was a former president of the International Stock Breeders' Association and for 25 years was treasurer of the Illinois State Board of Agriculture.

Pratt, John Teele. American financier, died in New York June 17. Born in Brooklyn, N. Y., Dec. 25, 1873, he was graduated from Adelphi Academy in Brooklyn in 1892, and four years later received a diploma from Amherst College. In 1900 he received a law degree at Harvard University. He practiced law in New York City in 1908, shortly afterwards entering the railroad and financial fields. He was elected a director of the Delaware & Hudson R. R in 1923. He was a large stockholder in Standard Oil companies. He was chairman of the National Budget Committee in 1919.

Prenter, William B.

Preston, Keith. American author, died at Evanston. Ill., July 7. He was born in Chicago, Sept. 29, 1884, and was educated at the University of Chicago and Indiana University. In 1913 he was associate professor of Latin at Northwestern University, and from 1919 to 1923 he was again a member of the faculty of that university. He afterwards joined the staff of the Chicago *Daily News* as literary editor. His published works included *Studies in the Diction of the Sermo-Amatorius of the Latin Comedy; Types of Pan; Splinters; Top o' the Column*.

Procope, Hjalmar.

Proctor, John. Baptist missionary, died in Shanghai, China, December 8. He was born near Palmyra, Mo., in 1869. He graduated at the William Jewell College, Liberty, Mo., and received his theological training at the University of Chicago Divinity School. He went to China in 1897 and for nearly 30 years was a missionary there. From 1906 until 1911 he was president of the Shanghai Baptist College.

Prohaska, Karl. Austrian composer, died in Vienna, in April He was born at Modling, Apr. 25, 1869, and studied at Vienna and Berlin. From 1901 to 1905 he was conductor of the Philharmonic Orchestra in Warsaw. He then settled in Vienna, where he was professor at the conservatory from 1908 until his death. Among his works for chorus with orchestra, the best known are *Frühlingsfeier, Der Feind,* and *Pierrot Lunaire*. He also wrote numerous choruses a cappella for male and for female voices, and much chamber music. He left an opera *Madeleine Guimard*, in manuscript.

Przybyozewski, Stanislaw.

Rand, Charles Frederic.

Randolph, Harold.

Ratchford, Michael D.

Read, Melbourne Stuart.

Reclus, Armand.

Reed, James Hay. American jurist, died at Pittsburgh, Pa., June 17. He was born at Allegheny City, Pa. Sept. 10, 1853, and was graduated at the Western University of Pennsylvania in 1872. He was admitted to the bar three years later at Pittsburgh, where he practised for half a century. He was appointed to the Federal Circuit Court in 1891, but resigned a year later on account of ill health. He was counsel for the Carnegie Steel Corporation and negotiated the sale of that property to the United States Steel Corporation. He was the father of Senator David A. Reed.

Reeves, Alfred Gandy.

Reid, George Thomas. American lawyer, died at Seattle, Wash., November 30. He was born at Etna Green, Ind., in 1871. He began to practice law in Tacoma, Wash., and in 1908 was appointed division counsel for the Northern Pacific R. R. In 1921 he became vice president of that road.

Reid, The Rev. Dr. Gilbert.

Reig y Casanova, Enrico, Cardinal. Archbishop of Toledo and Primate of Spain, died at Toledo, August 25 He was born at Valencia, Spain, in 1859, and in 1914 was consecrated Bishop of Barcelona. In December, 1922, he was created a cardinal, and in 1926 he attended the Eucharistic Congress of the Roman Catholic Church held at Chicago, being received, on his visit to America, by President Coolidge.

Remensynder, Junius Benjamin.

Remmel, Harmon L. American politician, died at Hot Springs, Ark., October 14. He was born at Stratford, N. Y, Jan. 15, 1852. He was a member of the Arkansas legislature in 1886, and was a candidate for Governor on the Republican ticket three times. Colonel Remmel was chairman of the State Republican Committee for 28 years and for 13 years a member of the Republican National Committee.

Remsen, Ira.

Rennert, Hugo Albert.

Rhea, James C. American soldier, died at Brookline, Mass., on August 3. He was born in Iowa, Mar. 7, 1876, and graduated at the U. S. Military Academy in 1899. His first army assignment was in Cuba as second lieutenant, and in 1905 he was transferred to the Philippines where he served, with the rank of captain, until 1907. He returned to the United States, but was reassigned to the Philippines in 1911, serving there until 1915. In May, 1917, he was promoted to the rank of major and two months later was made a lieutenant colonel in the National army. Going to France in 1918, he was assistant chief of staff of the Second American Army Corps and saw active service in the battles of St. Mihiel, the Meuse and the Argonne. After the Armistice he served in Coblenz, Germany, and when he returned to the United States became head of the Citizens' Military Training Camps in New England. He received the rank of colonel in 1923 and two years later was made brigadier general.

Rhodes, James Ford.

Richards, Eugene Lamb, Jr. American lawyer and banker, died at Woodbridge, Conn., September 17. He was born at New Haven, Conn., in 1863, and in 1885 graduated at Yale. From 1887 Mr. Richards was a member of the New York bar, and appeared in many important political cases. He was New York State Superintendent of Banks, 1914–1917.

Rideout, Henry Milner.

Rigge, William Francis.

Robbins, Wilford Lash.

Robineau, Georges.

Robinson, Frederic Cayley.

Robinson, Silas Arnold. American jurist, died at Middletown, Conn., January 13. He was born in Pleasant Valley, N. Y., Sept. 7, 1840. He was admitted to the bar in 1863, and practiced at Middletown, Conn. He served there as probate judge, 1878–80, mayor, 1880–82, and in 1890 was appointed a justice of the Supreme Court of Connecticut. He became a justice of the Court of Errors in 1910, but was retired for age the same year.

Rockwell, The Rev. Joseph Horace. Roman Catholic educator, died at Boston, Mass., August 1. Born in Boston in 1862, he studied at Boston College, and was for several years professor of rhetoric before studying theology at Woodstock, Md. He was ordained in 1895. In 1926, when the Jesuit province of New England was formed, he became its procurator. He had been president of Brooklyn and St. Francis Xavier Colleges and of the Association of Colleges of New York, 1911 to 1918

Rodney, Gen George Brydges.

Rogers, Howard Jason.

Roll, Sir James. Former Lord Mayor of London, died at Wanstead, Essex, January 30. He was born near London, Dec. 9, 1846. Of very poor parents, he had little schooling and entered an insurance firm as an office boy. He rose to be chairman of the company, retiring in 1916. He was Sheriff of the City of London, 1909–10, and Lord Mayor, 1920–21. He was created a baronet in 1921.

Roosevelt, James Roosevelt. American diplomat, died at Hyde Park, N. Y., May 7. He was born at Hyde Park, Mar 27, 1854, and graduated at Columbia in 1877. In 1888 President Cleveland appointed Mr. Roosevelt to be chargé d'affaires and secretary of legation at Vienna, where he served until the end of the administration He was also first secretary of the embassy in London. Mr. Roosevelt was a cousin of President Roosevelt

Root, Azariah Smith. American librarian, died at Oberlin, Ohio, October 2 He was born at Middlefield, Mass., Feb. 3, 1862, and graduated at Oberlin College in 1884. He studied law at Boston University, 1884–85; at Harvard Law School, 1886–87, and at the University of Gottingen, 1898–99. Since 1887 he was librarian at Oberlin College, and professor of bibliography since 1890. Professor Root was president of the Bibliography Society of America, 1923–24, and of the Ohio Library Association, 1921–22. He was one of the founders of the Anti-Saloon League.

Ross, Mrs. Janet Anne.

Rothwell, Walter Henry.

Roversi, Dr. Luigi.

Rovsing, Thorkild.

Rush, Thomas E. New York lawyer and public official, died at New York June 3. He was born at New York Jan. 16, 1867. He was educated at the College of the City of New York, New York University, and St. Francis Xavier College. He was admitted to the bar in 1890. After holding the post of State Comptroller, he was appointed Surveyor of the Port of New York by President Wilson in 1914, holding the position until 1920.

Russell, the Rt. Rev. William T.

Ryan, the Rev. Arthur Carlton. American missionary died at Scarsdale, N. Y., June 22. He was born at Grand View, Ia., in 1880, and graduated at Grinnell College in 1909. He prepared for the ministry at Oberlin College and was ordained in 1911. He went immediately to Turkey as a missionary, to aid in the Near East relief. He performed valuable services in the Italo-Turkish and Balkan Wars. He was recalled to the United States in 1925 to become general secretary of the American Bible Society.

Salmon, Lucy Maynard.

Salmon, Thomas William.

Sargent, Walter.

Sarruf, Yakub. Egyptian publisher, died at Cairo, July 10. He was born at Cairo in 1852. From 1878 to 1885 he was an instructor at the American University of Beirut, Syria. He was editor-in-chief and owner of *Al-Muktataf*, the leading scientific magazine in the Arabic-speaking world, and joint founder and owner of a chain of newspapers in Egypt and the Sudan, the chief of which are *Al-Mukattam* of Cairo and the *Sudan Times* of Khartoum.

Sars, Georg Ossian.

Sartain, Emily.

Saulsbury, Willard.

Savage, Henry Wilson.

Sazanoff, Sergius Dmitrievitch.

Schaefer, J. Louis. American banker, died at New York, February 5. Born in New York in 1866, he became associated with the export, import, shipping and banking firm of W. R. Grace & Co., being made treasurer of the company in 1895 and vice president in 1906. In 1924 he was made president of the Grace National Bank, besides having other banking connections. He was chairman of the committee on foreign commerce and revenue laws of the New York State *Chamber of Commerce* and a member of the Cotton Exchange of Dallas, Texas, and the New York Coffee Exchange. He was active in the work of the Lutheran Church.

Schmidt, Leopold.

Schwab, Frederick A. American newspaper man and music critic, died at Paris, June 9. He was born in 1844. He was sent to Europe by James Gordon Bennett as a reporter for *The New York Herald* to cover the Austro-Prussian War of 1866, but reached Europe too late. He remained in Paris, writing theatrical articles for *La Liberté*, and later became music critic for *The New York Times*. He was the last survivor of the ten founders of the Lotos Club, New York. He organized Mme Sarah Bernhardt's tour of the United States. He spent the last twenty years of his life in Paris, where he wrote musical notes for the *Paris Herald*, prior to his retirement.

Scroeter, Jens Fredrik. Norwegian astronomer, died at Oslo, April 28. He was born in 1850. For many years he was head of Oslo University Observatory, and he wrote books on astronomy.

Searson, James William. American educator, died at Boston, Mass., July 7. He was born at Grand Island, Neb., Sept. 12, 1873, and was educated at the University of Nebraska and Columbia University. He taught in the State University of Nebraska from 1894 to 1911, when he went to the Kansas State Agricultural College as professor of English, remaining there until 1921. In the latter year he returned to the University of Nebraska as head of the English Department. Two days previous to his death he had begun his duties as professor of education in the summer session of Boston University. He was editor of the *American Educational Digest* (with Dr. Frank A. Weld) and author of *Studies in Reading* (with George E. Martin), 1910–13; *Kansas Readers*, 1916–17; and *Self-Correction in English*.

Seligman, Simon. German dealer in French art, died at Paris, September 21. He was born in Frankfort, Germany, in 1854, but with his family moved to France and in 1878 he and his brother founded a business in French art objects of the eighteenth century and Middle Ages. He retired from business and devoted the last twenty years of his life to what was considered one of the greatest collections of thirteenth-century champlevé enamels in the world.

Serao, Matilde.

Seton, the Most Rev. Robert.

Sherman, Charles Colebrook.

Shipley, Sir Arthur Everett.

Simon, Charles Edmund. American physician and pathologist, died at Baltimore, Md., November 9. He was born at Baltimore, Sept. 23, 1866, and graduated at Johns Hopkins in 1888, later attending the University of Pennsylvania medical school and then the University of Maryland from which he received the degree of M D. in 1890. After serving at Johns Hopkins Hospital as assistant resident physician, in 1891 he began the practice of medicine in Baltimore. In 1897 he opened the first clinical laboratory in Baltimore, and between 1910 and 1920 he was professor of clinical pathology and physiological chemistry, teaching clinical laboratory methods to post-graduate students in medicine at the University of Maryland. In 1920 he was appointed lecturer in medical zoology at Johns Hopkins University, a position which he held for two years. In 1923 he became resident lecturer in filterable viruses, and full professor in June, 1927. He was the managing editor of the *American Journal of Hygiene* and the author of *Physiological Chemistry* (1901); *Infection and Immunity* (1911); and *Human Infection Carriers* (1919).

Sisowath, King.

Smith, Edward Henry. American author, died at New York, September 19. He was born at Leavenworth, Kan., in 1881, and was educated at Leipzig, Germany. He devoted about ten years to newspaper work before he commenced to write his books, most of which deal with crime. They include: *Release* (1921); *Famous Poison Mysteries* (1927); *Mysteries of the Missing* (1927).

Smith, Henry Preserved.

Smith, James, Jr.

Smith, Jesse Merrick.

Smith, William Strother, American naval officer, died at Newport, R. I., September 6. He was born in 1857 at Richmond, Va., and graduated at the U. S. Naval Academy in 1880. He passed through the successive grades until he became a rear admiral in 1918. During the Spanish-American war he served in the *Columbia* and the *Yankee*.

Sobieski, John. American soldier, died at Los Angeles, Cal., November 11. He was born in Warsaw, Poland, Sept. 10, 1842, the son of Count John Sobieski and a direct descendant of the last King of Poland. He was one of the most romantic figures in modern times—an exile at the age of six, a stowaway to the United States at 12, an Indian fighter at 16, a soldier of the Union army when 22, and a colonel in the Mexican army at 26. In 1858 he was a member of the Minnesota House of Representatives. It was said that he introduced the first bill on record advocating woman suffrage.

Solis-Cohen, Jacob.

Sologub, Feodor (Feodor Kugmich Teternikov).

Solomon, Solomon Joseph.

Sousa, Ernesto. Peruvian cabinet minister, died at Smelter, Peru, November 25. He was born at Cajamarca in 1866, and was educated at Lima. As Minister of Industry and Commerce, he died while engaged in studying the possibility of building a road from the coast to the rivers of the Peruvian forest. His death was attributed to a disease caused by the rarefaction of the air at a great altitude.

Spencer, Clarissa. American religious worker, died at Joplin, Mo., April 9. She was born at Kansas City, Mo., Dec. 17, 1870, and was educated at Goucher College. For 16 years she was general secretary of the world committee of the Y. W. C. A. in London, England, and she spent five years in Japan as a missionary of the Women's Foreign Missionary Society.

Speranza, Gino. American lawyer, died at Irvington, N. Y., July 13. He was born in Connecticut, Apr. 23, 1872, and was educated at the College of the City of New York and the New York Law School. He practiced law in New York from 1895, and for 15 years was legal adviser to the Italian consul general. He wrote *Race or Nation* (1925), and contributed to many magazines.

Springer, Frank. American palæontologist and author, died at Philadelphia, Pa., September 22. He was born at Wapello, Ia., June 17, 1848, and was educated at the University of Iowa. In 1869 he was admitted to the Iowa bar. Among his first scientific books was a volume on the revision of the palæocrinoidea, which he wrote between 1879 and 1886. He also wrote *Pentacrinus from East Indies* (1918); *Crinoids from Northern Canada* (1921); *Pentacrinus in Alaska* (1925); *Unusual Forms of Fossil Crinoids* (1926).

Squire, William Barclay.

Stalker, James.

Stansbury, William Riley. Clerk of the U. S. Supreme Court, died at Washington, D. C., June 5. He was born at Washington, May 25, 1856. He entered the employ of the Supreme Court as an assistant clerk in 1882 and was made clerk in 1921.

Stanton, Frank Lebby.

Stanton, John R. American metallurgist, died at Galesville, Wis., April 28. He was born at New York in 1857, and was graduated from the Columbia School of Mines in 1882. He took a prominent part in the expansion of the copper-mining industry in the Michigan district, particularly between 1898 and 1905.

Starling, Ernest Henry. British physiologist, died at sea on May 2. He was born in Bombay, India, in 1866, and was sent to King's College School, London, for his early education, and afterwards studied at Guy's Hospital and Heidelberg. In 1890 while working at University College, London, he became associated with Bayliss, the great English physiologist of the time. The collaboration of these two men resulted in discoveries relating to the electrical phenomena of the heart, the action of nerves on the heart, the regulation of the circulation, and the movements of the intestines. During the World War, Professor Starling was British delegate on the Inter-Allied Scientific Food Commission, and also chemical adviser of the Saloniki forces. He was vice president of the Royal Society in 1918–19. He had honorary degrees from Dublin, Cambridge, Sheffield, Strassburg and Breslau Universities. His published works include *Elements of Human Physiology* (8th ed., 1908); *The Fluids of the Body* (1909); *The Feeding of Nations* (1919); *The Action of Alcohol on Man* (1923); *Principles of Human Physiology* (1925).

Stein, Hermann von.

Steindorff, Paul. American bandmaster, died at Oakland, Cal., February 18. As one of the promoters of the American Opera Company, at the beginning of the eighties of the past century, he was one of the pioneers of grand opera in English. Later he conducted Italian operas at the Tivoli Opera House, at San Francisco. From 1915 on he was conductor of the Oakland Municipal Band.

Steinway, Frederick T. American piano manufacturer, died at Northeast Harbor, Me., July 17. He was born at New York, Feb. 9, 1860. In 1919 he succeeded his brother, Charles, as president of the famous firm of Steinway & Sons. During his term of office the firm moved from its historical headquarters in East 14th Street, New York, to the new Steinway Hall in West 57th Street. Mr. Steinway was also prominent as a philanthropist and patron of music.

Stenhammar, Wilhelm.

Stephens, Ambrose E. B. American politician, died in Cincinnati, Ohio, February 12. He was born in Hamilton County, Ohio, June 3, 1862, and was educated at the Chickering Institute, Cincinnati. He was a member of the Ohio bar, and was elected to the U. S. House of Representatives in 1919, serving until his death. He was especially active in naval affairs.

Sternberg, Dr. Lev.

Stevens, Walter Leconte.

Stevenson, Sir Malcolm. British diplomat, died in Cyprus, November 26. Born in Lisburn, Ireland, Mar. 25, 1878, he was educated at Trinity College, Dublin, and entered the Ceylon Civil Service in 1911. In 1917 he went to Cyprus as chief secretary to the government, and since 1920 had been high commissioner and commander-in-chief of the island. In 1923, he was made a Knight Commander of the Order of St. Michael and St. George.

Stewart, Lispenard. American philanthropist, died at New York, October 15. He was born in Westchester County, New York, June 19, 1855, and was educated at Yale. After his retirement from the presidency of the New York State Commission of Prisons in 1903, he interested himself in various philanthropic and civic organizations. He was especially interested in the New York Eye and Ear Hospital, Grace Church, and the New York Zoological Society.

Stokes, Adrian.

Stone, Ellen Maria.

Stover, Edward C. American ceramist, died at Trenton, N. J., July 10. He was the last of the founders of the Trenton School of Industrial Arts remaining on the board of trustees, and through his will the institution was to receive many fine specimens of his collection of old and modern objects of the ceramic art. Mr. Stover was one of America's pioneers in converting the ceramic industry from the old methods to a scientific basis, and contributed many important discoveries to the pottery industry.

Strachey, John St. Loe.

Strobel, Edgar Randolph. American dermatologist, died at Baltimore, Md., December 27. He was born at Baltimore in 1873, and in 1899 he took his medical degree at the Johns Hopkins Medical School. He was a member of the faculty of the school.

Suarez, Marco Fidel.

Sucher, Rosa.

Summers, Leland Laflin.

Sutro, Theodore.

Swain, Joseph.

Swaythling, Lord (Louis Samuel Montagu).

Talbot, Henry Paul.

Tanner, James. American lawyer and public official, died at Washington, D. C., October 2. He was born at Richmondville, N. Y., Apr. 4, 1844. In 1861 he enlisted in the Union army, and as a corporal in Company C, Eighty-seventh New York Infantry, served in numerous engagements of the Civil War, being so severely wounded in the second Battle of Bull Run, Aug. 30, 1862, as to require the amputation of both legs. He was employed as a clerk in the Ordnance Bureau of the War Department at Washington until 1865, when he returned to New York. While employed at the State Capitol at Albany, he carried on law studies, and was admitted to the bar in 1869. In that year he became U. S. deputy collector of customs in New York City and later served as collector of taxes in Brooklyn for four terms. He was active in the presidential campaign of Benjamin Harrison and in 1889 was appointed Commissioner of Pensions by President Harrison. He received appointment as Register of Wills of the District of Columbia by President Roosevelt in 1904. Advancing through numerous offices in the Grand Army of the Republic, he was elected commander-in-chief in 1905.

Taylor, Henry Martyn. British mathematician and barrister, died at Cambridge, October 16. He was born at Bristol, June 6, 1842, and was educated at Trinity College. For a time he was vice president of the Royal School of Naval Architecture and Marine Engineering, and was later admitted to the bar. He returned to Cambridge in 1869 as assistant tutor at Trinity College and was lecturer in mathematics from 1884 until 1894, when he lost his sight. Nevertheless, he continued to carry on his research work in mathematics, and also spent a number of years on stippling out scientific studies in the development of the Braille system. In recognition of his contributions to mathematical research he was made a fellow of the Royal Mathematical Society, Trinity College, in 1898.

Taylor, Price. British manufacturer, died at Toronto, Canada, July 15. Born in England in 1894, he was the fourth generation of his family to carry on the bell-making profession. He was manager of the Taylor works at Loughborough, England, and spent some time in war service. His death occurred while on a tour of the United States and Canada where his firm had installed several sets of chimes.

Teele, Ray Palmer. American economist, died at Myton, Utah, September 1. He was born in Fillmore County, Minnesota, Oct. 22, 1868, and was graduated at the University of Nebrakса in 1897. In 1898 he entered the government employ as an economist in the Department of Agriculture, a position he held during the remainder of his life, with the exception of the years 1919–21, when he was special agent in charge of irrigation for the U. S. Bureau of the Census. He contributed to numerous periodicals on the subject of water rights and irrigation, wrote government reports on irrigation and drainage, and was the author of *Irrigation in the United States* (1915).

Thayer, Col. Arthur. American soldier, died at Fort Totten, N. Y., August 16. He was born at Evansville, Ind., Feb. 1, 1864, graduated at the U. S. Military Academy in 1886, and saw active duty as a second lieutenant in the cavalry in the Indian campaigns. He later returned to West Point as an instructor in languages, and then served in the Spanish-American War, being cited for gallantry in the Battle of San Juan, Cuba, July 1, 1898. He participated in the Philippine insurrection, in which he was severely wounded. He received a second citation for bravery, Nov. 3, 1899. He was breveted captain for a perilous ride through hostile territory and for services in successive engagements. He was returned to West Point as instructor in 1903, was commissioned as colonel, July 1, 1916, and served in France during the World War. In 1922 he was made commanding officer of the New York General Depot, New York City.

Thomas, William Widgery. American diplomat, died at Portland, Me, April 25. He was born at Portland, Aug. 26, 1839, graduated at Bowdoin in 1869, and, in 1862, while studying law at Harvard, was dispatched by President Lincoln to carry a treaty to the Sultan of Turkey. He served as vice consul general at Constantinople, acting consul at Galatz, Moldavia, and consul at Gothenburg, Sweden, until 1865, when he resigned to resume his studies. Admitted to the Maine bar in 1866, he began the practice of law in Portland, and in 1869 entered public service as commissioner of public land. He was commissioner of immigration for Maine, 1870–73. He was sent by the State Legislature to Sweden in 1870, and returned with a group of 51 colonists who founded the town of New Sweden in the northern part of the State. After several terms in both houses of the State Legislature he was appointed by President Arthur as Minister to Sweden and Norway, a position he held under five Presidents. He was active in obtaining the services of King Oscar on three occasions in the settlement of controversies between the United States, Great Britain, and Germany.

Thompson, Frank Forrester. American educator, died at Lewistown, Pa., September 4. He was born at Milroy, Pa, Nov. 16, 1870, and graduated at Princeton in 1894. In 1897 he became instructor of physics at Union College, and from 1898 to 1901 he was instructor of electrical engineering at Pennsylvania State College. In 1903 he accepted a position as instructor of electrical science at Rutgers University, where since 1908 he was professor of electric engineering.

Thompson, Henry Dallas.

Thompson, William Gilman

Thomsen, Vilhelm Ludvig Peter.

Titchener, Edward Bradford.

Torti, Ernesto. Italian dramatic baritone singer, died at Chicago, February 27. He was born at Milan, in 1886. He went to New York in 1913 as member of the Century Opera Company, and for two seasons had been with the Chicago Civic Opera Company.

Tothill, Admiral Sir Hugh Henry Darby. British naval officer, died in London, September, 25. He was born in Hampshire, Mar. 14, 1865, and entered the navy as a cadet in 1878. After periods on several battleships, in December, 1914, he was given command of the *Conquerer*. At Jutland Captain Tothill had command of two ships, the *Conqueror* and *Orion*. In April, 1917, he was promoted to rear admiral and appointed chief of supplies and transport. In 1919 Sir Hugh was appointed commander-in-chief in the East Indies and in 1921 he was made vice admiral, becoming an admiral in 1926 In addition to several British decorations, he received the Russian Order of St. Anne, the Japanese Order of the Rising Sun, the French Legion of Honor and the American Distinguished Service Medal.

Travis, Walter Jeremiah.

Treadwell, John P. American miner, died in New York City on November 6. He was born in 1841 and was active in mining in many countries, innovations which he introduced still being utilized in the gold mines of America, Africa and Australia. The famous Treadwell Mine, which he discovered and developed, was on Douglas Island off the Alaskan coast, and was believed to have yielded more than $25,000,000 in ore. Mr. Treadwell was one of the organizers of the Western Pacific Railroad, and in its early years served on the board of directors. For the latter part of his life he was out of touch with mining.

Trench, Captain Martin Edwin. American naval officer, died at Worcester, Mass, January 6 He was born at Dennison, Minn, Nov. 30, 1869, and graduated at the U. S. Naval Academy in 1893. During the Spanish-American War he served on the battleship *Iowa*, and in the World War commanded the cruiser *Charleston*, one of the convoy vessels which accompanied the first detachment of the American Expeditionary Forces across the Atlantic. At the time of his death he was governor of the American Virgin Islands.

Trieber, Jacob. American jurist, died at Scarsdale, N. Y, September 17. He was born at Raschkow, Germany, Oct. 6, 1853, and when a youth went to the United States. He was admitted to the bar in Arkansas in 1877. From 1891 to 1897 he was Master in Chancery of the United States District Court in eastern Arkansas, and the three following years was United States Attorney in that district. He was appointed to the bench in 1900. He was assigned to the Southern District of New York a month before he died.

Tripp, Guy Eastman.

Tschakste, Jan. See Chakste, Janis.

Tupper, Sir Charles Herbert.

Tupper, Henry Allen. Baptist minister, died at Baltimore, Md, September 29. He was born at Washington, Ga., June 22, 1856, and educated at Charleston College, Richmond College, and the University of Virginia. He was ordained in 1879, and held pastorates in Louisville, Ky., Baltimore, Md., Brooklyn, N. Y., and Washington, D. C. During the Spanish-American War he held special missions among soldiers in the Southern camps. He served as special commissioner to Mexico of the International Peace Forum in 1912. Dr. Tupper was a former president of the New York Baptist Ministers' Conference and vice president of the Southern Baptist Convention.

Turpin, François Eugene.

Tuxen, Lauritz. Danish painter, died at Copenhagen on November 21. He was born in Copenhagen, Dec. 9, 1853. In 1874 he studied in Paris, and in 1883 in Italy. For many years he was official painter at the Danish court, and he painted the famous Lauritz episodes of lives of royal persons of Europe. His "Echoppes de Poissons à Nymindegab" is in the Museum of Copenhagen, and "Le Général Consul Pontoppidan" is in the Museum of Hamburg.

Tyler, David Gardiner. American jurist, died in Charles City County, Virginia, September 5. A son of John Tyler, tenth President of the United States, he was born at East Hampton, N Y., July 12 1846. He received his education at Washington College, Lexington, Va, which is now Washington and Lee University After studying in Germany for three years, he graduated from the law school of Washington College in 1869. He was a member of the Senate of Virginia, 1891–92 and 1900–04. From 1904 until 1920 he served as judge of the Fourteenth Judicial circuit of Virginia

Valli Valli (Mrs. Louis Dreyfuss). Musical comedy actress, died at London, England, November 3. She was born in Berlin, Germany, in 1882, and received her early schooling at London. At the age of 12 she made her first appearance on the stage, and soon became a favorite in London and Berlin. She went to New York in 1906 for the production of *Veronique*, and in 1908 was at Daly's in *The Merry Widow*, later appearing in other American cities with this play. In succeeding years she toured the United States in other productions

Van Dyck, Francis Cuyler.

Van Vredenburgh, Jonkheer. Dutch diplomat, died in Brussels, Belgium December 4. He was born at The Hague in 1874 He was Dutch Minister to Belgium since 1919. During the World War he was president of the Anglo-German Commission for Prisoners in Holland.

Vaux, George, Jr. American lawyer and public official, died at Bryn Mawr, Pa, October 24. He was born at Philadelphia, Pa., Dec. 18, 1863, and was educated at Haverford College and the University of Pennsylvania. After being admitted to the bar, he was largely engaged in reformatory and penological work. He was a member of the United States Board of Indian Commissioners from 1906 until his last illness, and had been chairman for many years.

Vera, Princess, of Montenegro. A younger sister of Queen Helena of Italy, died at Cap d'Antibes, Nice, October 30. Princess Vera was born at Rieka, Montenegro, Feb. 10, 1887. She was the eighth of nine children of the late King Nicholas I of Montenegro.

Viana, Marquis de Spanish court chamberlain, died at Madrid, April 5. He was for many years prominent at the Spanish court He signed the marriage contract of King Alfonso and Queen Victoria in 1906. He served as grand master of the horse and grand huntsman to the sovereign, being next in official rank to the majordomo or grand master-in-chief of the court The Marquis de Viana, who was well known in European capitals, spent considerable time in England He visited the United States on the occasion of the international polo games as representative of the Spanish King.

Viera, Feliciano.

Vogelgesang, Carl Theodore.

Voorhees, Foster MacGowan

Wade, Festus John.

Wadhams, Albion Varette.

Walcott, Charles Doolittle.

Waldstein, Sir Charles. See Walston.

Walker, Perley F American engineer and educator, died in Lawrence, Kan, October 17. He was born at Embden, Me., Apr. 28, 1875, and graduated at the University of Maine in 1896. He studied later at Cornell University. He joined the faculty of the University of Kansas in 1905, and 10 years later was appointed head of the school of engineering; when that school was amalgamated with the school of architecture he continued as dean of the combined school. His book, *Management Engineering*, is well known.

Walsh, Henry Collins. American editor, died in Philadelphia, Pa., April 29. He was born in Florence, Italy, on Nov. 23, 1863, and went to the United States when he was nine years old. After graduating from Georgetown University, he became engaged in newspaper and magazine work. Later he was on the staff of the American Press Association. Mr. Walsh traveled extensively, and organized the Arctic and the Explorers' Clubs, and was president of the Travel Club of America.

Walston, Sir Charles.

Ward, the Reverend Felix, Roman Catholic clergyman. Provincial of the Passionist Fathers, died in Hoboken, N. J., June 9. He was born at Limerick, Ireland, in 1854, and went to the United States when a boy. He entered the Passionist Monastery at Pittsburgh, Pa., when he was 18, and in 1878 was ordained priest at St. Michael's Monastery, Union City, N. J. He contributed many articles to magazines and wrote a history of the Passionist Fathers.

Warfield, (Solomon) Davies.

Warner, Sam L. Motion picture producer, died at Los Angeles, Cal., October 5. He was born in Baltimore, Md., Aug. 10, 1887. In 1903, with his brothers, he converted an old storeroom at Newcastle, Pa., into a theatre to show motion pictures, and the following year they organized at Pittsburgh, Pa., the Duquesne Amusement and Supply Company, which was among the earliest of the motion-picture distributing agencies. In 1910 Warner Brothers began to make their own pictures, ultimately purchasing the old Vitagraph plant in Brooklyn, N. Y., and establishing studios on the Pacific coast.

Warren, General Sir Charles.

Warren, John Collins.

Warren, William Robertson.

Washburn, Frederic Leonard.

Waterman, Frederick Mather, Steel corporation executive, died at Mahwah, N. J., May 21. He was born at Wheaton, Ill, Jan. 30, 1872. Mr. Waterman was connected with the United States Steel Corporation continuously since it was organized in 1901, and was treasurer since 1922.

Weir, Robert Fulton.

Wellington, George Lewis.

Wermuth, Adolf. German public official, died at Berlin, October 12. He was born at Berlin in 1855. He held high office in the Imperial Treasury before being elected Burgomaster of Berlin in 1912, a post he held until he resigned in 1920. In 1893 he was German Imperial Commissioner to the World's Columbian Exposition at Chicago.

Wheeler, Benjamin Ide.

Wheeler, Wayne Bidwell.

White, Frank.

White, Henry.

White, Israel Charles.

White, James. British financier, died at Foxhill, England. June 29. He was born at Rochdale, England, in 1878, and was educated in the council schools there. He began work as a bricklayer, afterwards going into business as a builder. Mr. White was known as a very bold speculator with a passion for deals on a very large scale. He served on various corporation boards and was chairman of the Beecham Trust. He was interested in oil companies and in various theatrical and sporting enterprises in London and New York.

Whitfield, Henry Lewis.

Whitney, Milton.

Wicksteed, Henry King. Canadian engineer, died at Toronto, July 25. He was born in Quebec, May 25, 1855, and was graduated at McGill University, 1873. After his graduation he was employed on exploration work for the Canadian Pacific Ry. and in 1875 he was appointed chief assistant at Port Arthur. For many years after that he was engaged in evploratory trips for the Canadian Pacific and other roads. In 1914 and 1915 he was in Venezuela, locating a railway from the interior to the coast. On his return to Canada he engaged in extending lines for the Canadian Northern, and following the taking over of that road by the government he remained with the new organization until 1921, when he retired.

Wicksteed, the Reverend Philip Henry.

Wight, Frank Clinton.

Williams, Charles Richard. American editor, died at Princeton, N. J, May 6 He was born at Plattsburg, N. Y., Apr. 16, 1853, and graduated at Princeton in 1875 He studied later at the Universities of Leipzig and Gottingen. Princeton awarded him a Ph.D. degree in 1893. Dr. Williams was editor-in-chief of The *Indianapolis News* from 1892 until 1911. He wrote an important biography of Rutherford B. Hayes (1914), and edited the diary and letters of Hayes (5 vols., 1922–26).

Williams, David. American publisher, died at Lake George, N. Y., October 28. He was born at Waterford, Ireland, Dec. 23, 1841, and in 1850 was brought to the United States. He graduated at Middletown Academy in 1857, and was associated with his father in publishing *The Iron Age*. In 1868 he became sole proprietor of the magazine, and established *The Metal Worker* (1873), and *Carpentry and Building* (1879).

Williams, Sir Ralph Champneys.

Willison, Sir John Stephen.

Wilson. William Powell. American museum director, died at Philadelphia, Pa., May 12 He was born at Oxford, Mich., Oct. 17, 1844, and was graduated from Harvard in 1878, going to Europe where he took the doctor's degree at Tubingen in 1880. He was director of the school of biology at the University of Pennsylvania, 1890–94. In 1893 he founded and afterward directed the Philadelphia Commercial Museum.

Windisch-Graetz, Prince Albert of.

Wolf, Horace J. Jewish welfare worker, died at Rochester. N. Y, February 17. He was born at Cincinnati, Ohio, June 15, 1885. He graduated at the University of Cincinnati, 1909, and was ordained by Hebrew Union College shortly afterwards. Rabbi Wolf was active in civic and social welfare movements in Rochester and other parts of the country for 20 years.

Wolfe, Gen. S Herbert. American insurance actuary, died at New York, December 31. He was born at Baltimore, Md., Mar. 19, 1874, and educated at the College of the City of New York. He made a speciality of examining insurance companies for state governments. In 1917 he was commissioned captain in the Quartermaster's Reserve Corps. He served with the American Expeditionary Forces in France, and received the rank of lieutenant colonel in October, 1918. In 1921 he was appointed brigadier general in the Officers Reserve Corps.

Wood, Josiah. Canadian statesman, died at Sackville, N. B., May 13. He was born at Sackville, Apr. 18, 1843. and educated there at Mount Allison University. From 1882 to 1896 he represented Westmoreland County, New Brunswick, in the Dominion House of Commons, and was mayor of Sackville, 1903–08. He was a senator of the Dominion, 1896–1912, and lieutenant governor of New Brunswick 1912–17.

Wood, Leonard.

Woodbury, Frank W.

Woolson, Ira Harvey.

Work, Bertram G.

Worrell, John Austin. Canadian lawyer, died at Toronto, February 27. He was born at Smith's Falls, Ont., July 21, 1852, and educated at Trinity College, Toronto. He became a barrister in 1878, and a Queen's Counsel in 1889. He was one of the leaders of the Canadian bar, and was chancellor of Trinity University from 1914 until his last illness.

Worthen, Thomas Wilson Dorr. American educator, died at Middletown Springs, Vt., September 21. He was born at Thetford, Vt., Oct. 3, 1845. He was graduated at Dartmouth College in 1872, joined the faculty of the college in 1878, and was professor of mathematics, 1893–1911.

Wright, Warren Huntington. American publisher, died at Swampscott, Mass., July 14. He was born at Boston, Mass., in 1864. He entered the employ of the publishing house of Little, Brown and Company as a boy in the wholesale department of which he later became head. In 1913 he became secretary and was made vice president in 1926.

Wyman, Walter Channing. American archæologist, died in New York City, January 29. He was born in Boston, Mass., in 1850. For more than 40 years Mr. Wyman had been a collector of American relics. In 1893 he organized the archæological department for the World's Columbian Exposition in Chicago.

Young, Sir Frederick William.

Young, the Rev. S. Hall. American clergyman and missionary, died near Clarksburg, W. Va., September 2. He was born at Butler, Pa., Sept. 12, 1847, graduated at Wooster College and the Western Theological Seminary, and went to Alaska in 1878, where he spent a number of years organizing missions. He was said to have established the first Protestant church in Alaska in 1879, and in 1901 was appointed superintendent of all Alaskan Presbyterian missions, his duties taking him to all parts of Alaska and the Siberian coast. He contributed many articles to magazines telling of his experiences in the Northwest.

Yusef, Mulai.
Zaghloul Pasha, Said.
Zeisler, Fannie Bloomfield.

Zevely, James W. American lawyer, died at East Hampton, N. Y., June 10. He was born at Linn, Mo., Oct. 8, 1861, and graduated at the University of Virginia. He read law, and continued his studies while he was state librarian at Jefferson City, Mo., and later while inspector in the Department of the Interior in President Cleveland's second administration. He was admitted to the bar in 1902 and practiced at Muskogee, Okla., until 1917, when he became attorney for the Sinclair Consolidated Oil Company. As personal attorney for Harry F Sinclair he was a witness in 1924 in the Teapot Dome oil investigation, in which the Sinclair Company and Albert B. Fall, former Secretary of the Interior, were involved.

Zingher, Abraham. American physician and bacteriologist, died at New York, June 5. He was born in 1855 and graduated at Cornell Medical School in 1908. In addition to his duties as assistant professor of bacteriology and hygiene at New York University and Bellevue Medical Schools, and pediatrist at the Post Graduate Hospital, New York, he was attending physician at the Willard Parker Hospital and carried on private practice and research work. He did notable work in the infantile paralysis epidemic of 1916. He served at Base Hospital 69 in France during the War. He was one of the men who worked with Dr. Schick of Vienna, during the latter's visit to the United States, in perfecting the anti-diphtheria serum. At the time of his death he was working on serums for the treatment of scarlet fever, rheumatism and measles.

NEGRI SEMBILAN, nā′grē sem′belän′. A federation of nine divisions, constituting a state in the Federated Malay States (q.v.).

NEJD, SULTANATE OF. See ARABIA.

NEOLITHIC AGE. See ARCHÆOLOGY.

NETHERLANDS, THE, or HOLLAND. A constitutional monarchy of Europe, bordering on the North Sea, which bounds it on the west and south; bounded on the east by Germany and on the south by Belgium. Capital, The Hague.

AREA AND POPULATION. On Jan. 1, 1926, the total area was 12,593 square miles, exclusive of water; population, according to the census of 1920, 6,865,314; according to the communal lists for Dec. 31, 1925, 7,416,418; density per square mile in 1925, 588.9. According to the figures for 1925, 46.34 per cent of the population, or 3,436,582, were inhabitants of towns of 20,000 or more, the remainder being classified as rural. In 1926 the movement of population was: Births, 177,459; deaths, 73,348; marriages, 55,341. The emigration, mostly to North America, was 3020 in 1925. The largest cities with their populations, Dec. 31, 1925, were: Amsterdam, 718,046; Rotterdam, 552,343; The Hague, 398,416; and Utrecht, 149,819.

EDUCATION. Primary instruction is free and compulsory between the ages of seven and 13, the cost being shared by the state and the commons. Public elementary schools in 1923–24 numbered 3808 with 17,390 teachers and 527,585 pupils; private elementary schools numbered 3428 with 17,836 teachers and 561,618 pupils; public infant schools, 220 with 1237 teachers and 34,971 pupils; private infant schools, 1223, with 3165 teachers and 109,606 pupils. For higher education there are the four public universities at Leyden, Utrecht, Amsterdam, and Groningen, with totals of 384 members in the faculties and 6436 students. Besides there are a technical university, a private university, navigation schools, commercial schools, schools for working people, etc.

PRODUCTION. In 1925 the cultivated land amounted to 2,501,863 hectares, distributed as follows: arable land, 892,067; pasture, 1,258,756; gardens and orchards, 101,792; forest, 249,248. Large estates prevail in the provinces of Zealand, South Holland, Groningen, and North Holland; small estates in North Brabant, Guelders, Limburg, and Overyssel. The yield of the more important crops in 1925 was: Wheat, 686,490 quarters; barley, 422,826 quarters; oats, 2,203,506 quarters; rye, 2,016,501 quarters; sugar beets, 2,223,823 tons; flax, 10,852 tons. According to the latest available census of livestock there were 363,668 horses, 2,062,771 cattle, 668,211 sheep, and 1,519,245 pigs.

Coal is mined to some extent in Limburg; the output in 1925 was 6,848,567 metric tons, of which mines owned by the State produced 3,804.618 tons. Incomplete figures for the manufacturing industries in 1925 showed 315 distilleries, 10 sugar refineries, 19 beet sugar refineries, 13 salt works, 219 breweries, and 3420 tobacco factories. Diamond cutting and shipbuilding are other important occupations. In 1925, 5229 vessels of all kinds were engaged in the fisheries; the produce of the herring fisheries in the North Sea was valued at 10,146,611 guilders in 1925 and the quantity of oysters produced in the same year was 1,316,900 kilos.

COMMERCE. According to a British authority, the total value of Dutch exports in 1926 was 1,749,205,000 guilders and the total value of imports 2,441,903,000 guilders. The following table from the same source gives the value of the leading articles of import and export in 1926:

	Imports 1926	*Exports 1926*
Iron and steel of all kinds	129,697	36,700
Textiles, raw and manufactured	323,182	216,527
Cereals and flour	264,975	14,615
Coal	147,128	106,246
Rice and flour thereof	41,357	29,880
Mineral oil	59,456	3,099
Coffee	63,480	28,352
Butter	2,488	80,070
Margarine (raw and eatable)	5,492	61,835
Sugar	54,091	58,791
Cheese	441	69,964
Gold and silver	28,826	16,432
Wood	116,528	8,160
Skins	32,036	27,427
Copper	12,676	4,611
Paper	35,115	43,275
Soot, grease, tallow, suet	33,692	22,331
Zinc	5,965	11,799
Tobacco (unmanufactured)	37,552	2,218
Tin	3,879	628
Colours (painter's wares)	13,931	20,807
Seeds (colza, linseed, etc.)	72,591	17,030
Manures (all sorts)	59,441	21,045

FINANCE. The proposed budget of the Netherlands for 1928, presented to Parliament, Sept. 20, 1927, indicated further progress in government finance and reflected relatively satisfactory business conditions. It provided for expenditures under the "Ordinary Service" of 591,823,000 florins and receipts of 595,240,000 florins; under the "Extraordinary Service," estimated expenditures are 229,657,000 florins and receipts are 56,341,000 florins. The apparent deficit for the total budget is, accordingly, 169,899,000 florins. Other principal features of the budget proposals included a projected reduction of 20 per cent in income taxes, the redemption of the 1923A loan, amounting to 97,089,000 florins, and the conversion of the 1923B loan of 83,175,000 florins. The prospects for the 1928 budget were, however, much better than was indicated in the budget tables of receipts and expenditures. It was expected that legislation would be passed applying practically all the favorable balance under the ordinary service to a pension fund.

In the extraordinary service expenditures is an item of 180,273,000 florins which refers to the redemption of the 1923A loan and conversion of the 1923B loan. Funds set aside specifically against this item amount to only 47,500,000 florins, to be received through the liquidation of a post-war export organization. However, in the practical handling of the budget, other receipts that will be applied against the expenditure comprise a loan of 84,000,000 florins to convert the 1923B loan, a sum of 25,000,000 florins to be received from the French government, and some 24,000,000 florins from municipalities that borrowed funds from the central government to carry out building programmes. As a result of these operations it was expected that the entire budget deficit would be reduced to somewhat over 40,000,000 florins.

The generally healthy condition of national finances was attributed largely to the heavy burden that has been imposed on taxpayers. The Minister of Finance was known to favor a policy of lower taxation in order to further industrial revival. The extent of budgetary progress was indicated by the fact that from 1918 to 1925 the budget closed each year with a deficit, expenditures in 1921 exceeding receipts by 296,000,000 florins. In 1925 there was a surplus for both services of 12,825,000 florins and in 1926 it was expected that the surplus would reach 15,376,000 florins.

The total public debt of the Netherlands on Sept. 1, 1927, was 2,920,018,000 florins, comprising 2,772,779,000 florins of consolidated debt and 147,239,000 florins of floating debt. The floating debt had shown a steady and marked decline since the high point of 858,068,000 florins in 1921. The foreign debt of the Netherlands treasury is only 100,000,000 florins, resulting from a loan placed in the United States in 1924.

Communications. The number of vessels in the mercantile marine at the beginning of 1926 was 168 sailing vessels of 15,886 tons and 781 steamers of 1,311,976 tons. In 1925, 21,005 vessels of 27,303,000 tons entered the ports of The Netherlands and 21,018 vessels of 27,129,000 tons cleared. Of these 5463 Dutch vessels of 7,505,000 entered and 5465 vessels of 7,514,000 tons cleared. All the railways, totaling 2405 miles in 1925, are privately owned. In that year 47,151,000 passengers were carried; the revenue was 159,230,000 guilders.

Army and Navy. The strength of the Dutch army on Apr. 1, 1926, was 8047 officers and 340,160 men; the military budget for 1927 was 58,985,100 florins. The naval budget for the same year was 40,982,965 florins. See Military Progress; Naval Progress.

Government. Executive power is vested in the sovereign and legislative power conjointly in the sovereign and the parliament, which is called the States-General and consists of two houses. The upper chamber is composed of 50 members, elected by the provinces, and the lower chamber of 100 deputies, elected directly. Ruling sovereign in 1927, Queen Wilhelmina Helena Pauline Marie, born Aug. 31, 1880, and crowned Sept. 6, 1898. The first chamber as a result of the elections of 1926 was composed of 16 Catholics, 7 Anti-Revolutionists, 7 Protestant Party, 6 Liberty Union, 3 Democrats, and 11 Social Democrats. The second chamber (lower house) elected in 1925 was composed of 31 Catholics, 24 Social Democrats, 13 Anti-Revolutionists, 11 Christian Historicals, 9 Liberty Union, 7 Democrats, and 5 members of other parties. The ministry as formed on Mar. 8, 1926, was as follows: President of the Council and Minister of Finance, Dr. D. J. de Geer; Foreign Affairs, F. B. van Blokland (appointed Mar. 30, 1927); Interior and Agriculture, Dr. J. B. Kan; Justice, Dr. J. Donner; Colonies, Dr. J. C. Koningsberger; War, J. M. J. H. Lambooy (appointed Apr. 24, 1926); Public Works, Dr. H. van der Vegte; Marine, J. M. J. H. Lambooy (ad interim); Labor, Commerce and Industry, Dr. J. R. S. de Bruine; Instruction, Science and Arts, Dr. M. A. M. Waszink.

History. As noted in the preceding Year Book, a revolt of considerable proportions broke out in the Dutch East Indies during the latter part of the year 1926. Sporadic riots and uprisings occurred during the first few months of 1927, but the government kept a firm hand on the situation and prevented the movement from spreading. It was definitely established that the revolt was the work of Communistic agitators and was largely financed from Moscow. Failure on the part of the leaders to get the millions of Japanese to follow them into armed insurrection and the loyalty of the native leaders connected with the government were the causes for the failure, because there was no doubt that, if the entire population rebelled, the meagre forces in the hands of the Dutch government would be unable to cope with such a situation.

In the spring the Dutch Upper Chamber rejected a treaty with Belgium which had been passed by the Lower Chamber in November, 1926. The treaty was purely economic and had been the subject of negotiation between the two countries for a long period of time. It dealt with the navigation of the Scheldt and Rhine Rivers and called for the construction of canals from Antwerp and Moerdijk on the Rhine and another from Antwerp to Buhort on the Rhine. The chief burden of the construction of these canals would be borne by Belgium. The chief objection to the measure seemed to be that Rotterdam would suffer as a commercial centre and the port of Antwerp in Belgium would be the chief gainer of any loss of trade at Rotterdam. Jonkheer Van Karnebeek, the Dutch Foreign Minister, was seriously perturbed by the rejection of the treaty and stated that he would resign his post because of it as soon as a successor could be named. His position was later taken by Jonkheer F. Belaerts Van Blokland, appointed Mar. 30, 1927.

Queen Wilhelmina opened the Dutch parliament on September 20, with a speech that dealt chiefly with economic conditions. She stated that the agricultural capacity of the country was increasing but that trade and industry were depressed. The government was giving special attention to the financial situation in an effort to reduce taxation in order to permit business to expand and thus bring about a return to prosperity.

NEVADA. Population. According to the Fourteenth Census of the United States, the population of the State Jan. 1, 1920, was 77,407, and no subsequent estimate had been made to 1926. Capital, Carson City.

Agriculture. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	368,000	638,000[a]	$6,092,000
	1926	369,000	680,000[a]	6,900,000
Potatoes	1927	6,000	780,000	663,000
	1926	5,000	700,000	910,000
Wheat, winter	1927	5,000	120,000	150,000
	1926	5,000	120,000	132,000
Wheat, spring	1927	14,000	364,000	455,000
	1926	12,000	288,000	340,000

[a] tons.

MINERAL PRODUCTION. The combined value of gold, silver, copper, lead, and zinc mined in the State in 1926 was $24,549,991, as against $23,309,352 in 1925. This higher total resulted wholly from the increased production of copper, of which there were produced 101,827,937 pounds in 1926; in 1925, 79,300,224 pounds. The 1925 product had a total value of $11,260,632. Gold production was, in 1926, 175,382 fine ounces; in 1925, it was 187,105 fine ounces, valued at $3,867,798. Silver production was 6,518,983 fine ounces in 1926; in 1925, it was 7,096,618 fine ounces, valued at $4,925,053. Lead produced in 1926 totaled 22,367,965 pounds; in 1925, 24,476,452 pounds, valued at $2,129,451. Zinc production decreased to 10,817,833 pounds for 1926, from 14,821,293 pounds for 1925; for 1925, the product was valued at $1,126,418. Outside of these three metals, the chief production in the mineral field was that of gypsum. There were produced in 1925, 350,130 short tons of gypsum; in 1924, 365,714 short tons. Its value was, for 1925, $1,721,809; for 1924, $2,063,089. The total value of the State's mineral production in 1925, duplications eliminated, was $26,469,901; in 1924, $26,225,043.

The value of the gold, silver, copper, lead, and zinc mined in Nevada decreased to about $22,948,000 in 1927. There was a decided increase in the output of copper, but the other metals, especially gold and silver, decreased. The increase in copper, equivalent to about $1,000,000, was not sufficient to balance the other decreases, especially since the average metal prices were much less than those of 1926.

The gold output decreased from $3,625,461 in 1926 to $3,013,400 in 1927, on account of the closing of the large mill of the Comstock Merger Mines (Inc.)

The silver production decreased from 6,518,983 ounces in 1926 to about 5,415,000 ounces in 1927, and the value from $4,067,845 to $3,070,300. The copper increased from 101,827,937 pounds in 1926 to about 117,470,000 pounds in 1927, and the value from $14,255,911 to about $15,271,000. The lead output decreased from 22,367,965 pounds in 1926 to about 16,810,000 pounds in 1927, and the value from $1,789,437 to about $1,138,000. The zinc recovered from ore mined in Nevada decreased from 10,817,833 pounds in 1926 to about 7,250,000 pounds in 1927 and from $811,337 in value to about $455,300.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Dec. 31, 1927, were $2,016,215; their rate per capita was $26.05. They included $449,794 apportioned for education. Totals not included in the above, of $90,764 in interest and of $1,810,452 in permanent improvement outlays, brought the aggregate of State payments to $3,917,431. Of this, $1,682,049 was for highways; $288,526 being for maintenance and $1,393,523 for construction.

Revenue receipts were $3,807,377; or per capita, $49.19. Of their total, property and special taxes yielded 36.3 per cent, attaining a per capita rate of $17.87. Earnings of departments and compensation paid the State for officials' services supplied 5.8 per cent of revenue; 12.3 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a gasoline sales tax.

Net State indebtedness on Dec. 31, 1926, was $1,672,131, or $21.60 per capita. Property subject to ad valorem taxation bore a valuation of $202,987,353. State taxes levied thereon were $1,309,933, or $16.92 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 2,207.55. No new construction in 1927 was reported.

EDUCATION. Revision of the course of study for both elementary and high schools was reported. A Nevada Council of School Administration was formed, its purpose being to further study of the State's school problems. The total public school enrollment in the scholastic year 1925–1926 was 15,614. Of those enrolled 12,359 were in the elementary schools and 2810 in high schools. Expenditure for education amounted to $1,490,019 for the public elementary schools and $608,316 for public high schools. The salaries of teachers averaged, in elementary schools, $1,278.61; in the high schools, $1,806.99.

CHARITIES AND CORRECTIONS. Activities as organized up to the end of 1927 were distributed among several State agencies: the Board of Pardons and Parole Commissioners, the State Board of Prison Commissioners, the State Orphans' Home Directory, the Commissioners for the Care of the Indigent Insane and the State Board of Health, Child Welfare Division. The chief institutions were: State Orphans' Home, Carson City; Nevada Hospital for Mental Diseases, Reno; Nevada State Prison, Carson City. To the State Prison were admitted in 1926, according to the U. S. Department of Commerce, 123 prisoners; inmates on Jan. 1, 1927, numbered 231.

LEGISLATION. The State Legislature convened in biennial session in January. It enacted a statute to regulate the method of issuing county and municipal bonds. This provided that all issues must mature serially within 25 years, the installments being equal, except for the first; that an annual tax levy be made to meet principal and interest; and that bonds be sold to the best bidder, no bid of less than par being accepted. The State divorce law was amended to permit divorce action on the part of a resident of three months, instead of six, and to admit insanity of the spouse among the statutory reasons for granting divorce. The corporation law was revised in various respects to render it more liberal. The Legislature adjourned March 18.

POLITICAL AND OTHER EVENTS. An active gold rush in February and March followed on the reported discovery of a pocket of rich ore at Weepah, in the Tonopah district, by two boy campers digging for a gopher. Thousands of gold hunters hastened to the scene by automobile, or sought neighboring territory. In the accounts of State Treasurer Malley investigators discovered in May a shortage of over $500,000. The sum exceeded the amount for which this official was bonded, but Governor Balzar announced that he would meet deficiencies by borrowing until the receipt of the June tax installments.

Officers. Governor, Fred B. Balzar; Lieutenant-Governor, Morley Griswold; Secretary of State, W. G. Greathouse; Treasurer, Ed Malley; Attorney-General, M. A. Diskin; State Comptroller, E. C. Peterson; Auditor, Iven Jeffries; Superintendent of Public Instruction, Walter W. Anderson.

Judiciary. Supreme Court: Chief Justice, J. A. Sanders; Associate Justices, Ben W. Coleman and Edward A. Ducker.

NEVADA, University of. A State institution of higher education at Reno, Nevada; founded in 1874. There was an enrollment of 869 students for the autumn term of 1927, of whom 524 were men and 345 were women. These were distributed among the various departments of the University as follows: arts and sciences, 608; normal school, 40; engineering, 161; agriculture, 29; home economics, 31. The summer session of 1927 had a registration of 130. There were 74 members on the faculty. The productive funds amounted to $358,439.19, and the income for the year to $536,927.57. The library contained 47,119 volumes. President, Walter E. Clark, Ph.D., LL.D.

NEW BRUNSWICK (brŭnz′wĭk). One of the Maritime Provinces of Canada, lying east of Maine and south of the province of Quebec. Area, 27,985 square miles; population, according to the census of 1921, 387,876. The capital is Fredericton, with a population in 1921 of 8114. The largest cities with their populations in 1921 are St. John, 47,166 and Moncton, 17,488. The chief industries are: Agriculture, mining, manufactures, fishing, and lumbering. The acreage and yield of the principal crops for 1926 were as follows: Wheat, 10,916 acres, 189,000 bushels; oats, 204,686 acres, 5,874,000 bushels; barley, 6558 acres, 148,000 bushels; rye, 320 acres, 5000 bushels; mixed grain, 2881 acres, 84,000 bushels; other grains, 48,297 acres, 1,038,000 bushels; potatoes, 42,744 acres, 4,321,000 cwts.; roots, 12,235 acres, 2,104,000 cwts.; hay and clover 559,019 acres, 704,000 tons; fodder corn, 3975 acres, 26,000 bushels. The livestock census in 1926 showed 53,159 horses; 116,530 milch cows; 107,932 other cattle; 156,616 sheep; 71,568 swine; and 854,621 poultry. The total value of the fisheries in 1925 was $4,798,589. The province possesses various minerals including iron, gypsum, coal, building stone, antimony, copper, and manganese. The only active mining, however, is in coal and gypsum. The coal output in 1925 amounted to 207,189 short tons. In 1925–26 the exports from the Province amounted to $97,876,375 and the imports for consumption amounted to $26,904,574. In the same year there were 1941 miles of railways open for operation. The province is under a lieutenant-governor appointed by the governor-general of Canada, and a legislative assembly of 48 members elected for five years. As a result of the election held in August, 1925, the political grouping in the assembly was as follows: Conservatives, 35; Liberals, 12; Independent, 1. Lieutenant-governor in 1927, W. F. Todd; Prime Minister, Minister of Public Works, and Attorney-General, J. B. M. Baxter; Secretary-Treasurer, A. J. Leger; Agriculture, Lewis Smith; Public Health, Dr. H. I. Taylor; President of the Executive Council, L. P. D. Tilley; Lands and Mines, C. D. Richards; Minister without Portfolio, E. A. Reilly. The province is represented by 10 members in the Canadian Senate and 11 in the House of Commons.

NEW CALEDONIA, kăl′ė-dō′nĭ-a. A French colony, comprising the island of New Caledonia, the southernmost of the Melanesian Islands; lying between 20° 1′ and 22° 26′ S. latitude, and 161° 30′ and 144° 40′ E. longitude; and the following dependencies: Isle of Pines, Wallis Archipelago, Loyalty Islands, Huon Islands, and Futuna and Alofi. The island of New Caledonia has a length greater than 248 miles and an average width of 31 miles. Area, 7650 square miles. Population, according to the census of 1921, 47,505, of whom 14,172 were free, 2310 of convict origin, and 25.123 Melanesians and Polynesians. Capital, Nouméa, with 9336 inhabitants in 1921. No convicts have been sent to the penal settlements on Nou Island since 1896. Coffee, copra, cotton, manioc, corn, bananas, tobacco, and pineapples form the principal agricultural products. The mineral resources are said to be very rich and varied, comprising cobalt, chrome, nickel, iron, manganese, all of which are abundant; also antimony, mercury, silver, gold, lead, copper, and cinnabar. In 1925 the value of mineral exports was 4,019,334 francs. The other leading exports include coffee, copper, copra, guano, and preserved meats. The chief imports are wine, coal, flour, and rice. In 1925, 176 vessels of 271,547 tons entered and 185 of 264,882 tons cleared the ports of New Caledonia. About two-thirds of those that entered were French. There is a narrow gauge railway from Nouméa to Paita, about 20 miles long; an extension to Bourail, a distance of 105 miles, has been proposed for some time. The colony is administered by a governor assisted by a privy council, made up of officials, and by an elected council-general. Governor in 1927, M. Guyon, appointed in 1925.

NEW ENGLAND FLOODS. See Floods.

NEWFOUNDLAND, nū′fŭnd-lănd′. An island possession of Great Britain in the northeastern part of the Gulf of St. Lawrence. Area, 42,734 square miles; population, according to the census of 1921, 259,358, estimated in 1924, 258,425. Dependent upon Newfoundland is the populated strip of Labrador, with an area of 120,000 square miles and a population in 1924 of 3874 (see below). Capital, St. John's, with a population in 1924 of 38,782. Other towns and their populations in 1921 were Bonavista, 4025; Harbor Grace, 3825; Carbonear, 3320. The birth rate in 1925 was 26.43 per thousand and the death rate 14.21 per thousand. The immigrants in the same year numbered 13,461 and the emigrants, 13,211. There were 1092 schools of all kinds in 1925, with a total attendance of 58.093.

The value of exports from the island, for the fiscal year 1925–26, amounted to $27,563,213, or $4,000,000 above the returns for the previous year; but since a large share of this increase is attributable to paper exports it is not an evidence of any substantial increase in the general purchasing power. Returns from paper and iron ore, although approximating two-thirds of the value of total exports, are distributed locally to a Newfoundland staff of about 5000 persons.

whereas the proceeds of the cod-fishery go directly into the hands of about 102,000 persons, or 38 per cent of the population. The dependence of the country's prosperity on the successful out-turn of the fisheries gives business in Newfoundland a speculative character, which the government was trying to ameliorate by promoting diversification in agriculture and other industries. Since its own revenues are derived largely from customs and excise sources, they likewise are very sensitive to variations in local income from the country's historic industry.

During the latter months of 1926 a direct steamship service was established between St. John's and the principal cities on the Great Lakes, and this opened a way for the exportation of fresh fish to these inland markets. In the export total for the 1925–26 period, products of the colony's fisheries accounted for $14,549,000; manufactures (chiefly newsprint paper), $8,590,000; products of the mines, $1,938,000; and forest products, $535,000. Miscellaneous goods comprised the remainder, $1,951,000.

VALUE OF THE FOREIGN TRADE OF NEWFOUNDLAND FOR THE FISCAL YEAR ENDED JUNE 30, 1926

Country	*Dominion imports*	*Dominion exports (including reexports)*
United Kingdom	$5,785,093	$6,460,197
Canada	11,826,406	1,987,541
United States	8,861,819	4,865,640
British West Indies	281,662	1,604,250
Other West Indies	653	1,022,245
Brazil	445	2,319,111
Holland	117,903	1,292,592
Italy	4,377	1,221,113
Portugal	27,448	2,532,773
Spain	153,813	3,408,254
All others	492,686	849,497
Total	27,552,305	27,563,213

The government railways opened in 1925 totaled 905 miles; private railways, 47 miles. The Newfoundland government railway showed a net loss of $358,509 for the year ending June 30, 1925.

Executive power is vested in a governor, assisted by an executive council of not more than 10 members, and legislative power is vested in a council of not more than 24 members and an elected house of representatives of 36 members. Women were enfranchised by an act of the legislature passed in 1925. Governor and Commander-in-Chief in 1927, Sir William L. Allardyce; Prime Minister and Minister of Education, W. S. Monroe; Justice, W. J. Higgins; Colonial Secretary, Sir J. R. Bennett; Finance and Customs, Sir J. C. Crosbie; Posts and Telegraphs, W. J. Woodford; without portfolio, A. B. Morine, M. S. Sullivan, Richard Cramm, Robert Duff, and J. J. Long; members of the government but who are not in the cabinet, Marine and Fisheries, C. Winsor; Public Works, W. McK. Chambers; Agriculture and Mines, W. J. Walsh.

HISTORY. Conflicting claims between Newfoundland and the Province of Quebec over the Labrador Peninsula had caused unsatisfactory litigation since 1902, as both Newfoundland and Quebec had granted concessions to identical areas of land in the interior of Labrador. By common consent the conflicting claims were referred to the judicial committee of the British Privy Council, who heard the arguments of the opposing counsel in December, 1926. The decision of the Privy Council, which is binding on both parties, was announced on Mar. 1, 1927, and by unanimous opinion the Newfoundland claim to the whole of the Labrador watershed draining into the Atlantic Ocean was practically upheld.

According to the decision, the boundary between Canada and Newfoundland in the Labrador Peninsula is a line drawn due north from the eastern boundary of Anse Sablon, as far as 52° north latitude, thence westward along that parallel until it reaches the Romaine River, then northward along that river and its headwaters or height of land, thence westward and northward along the crest of the watershed of the rivers flowing into the Atlantic Ocean, until it reaches Cape Chidley. It was reported that the Province of Quebec would employ a corps of technical experts to define exactly the area tributary to the Romaine River, on which the decision was assumed to rest. No action had been taken by the Newfoundland government on the numerous requests for concessions which have been received since the announcement of the decision.

The economic value of the disputed territory, covering about 120,000 square miles, exists in its fisheries, forests, water power and mineral wealth. There is practically no permanent population, except a few Eskimos and Indian trappers, and no accurate surveys have been made of the resources of the area. Each summer, several thousand Newfoundland families go to the Labrador coast to catch and cure codfish; in 1926, the catch amounted to 750,000 quintals, valued at $3,000,000—a fairly representative taking for the last few years. The greater part of the forest area is practically inaccessible, and the resources may be said to be potential rather than actual. The coast is bare and forbidding, but the interior valleys are well wooded with spruce that has large potential value as pulp wood. The water power resources are almost unlimited. Very little is known respecting the mineral wealth. Enormous quantities of iron ore have been observed but they are inaccessible. An attempt was made to work a large deposit of iron pyrite but conditions made the operation commercially unprofitable.

NEW GUINEA, gĭn′ē. An island of the East Indies, the third largest in the world, ranking after Australia and Greenland. Area, variously estimated at from 310,000 to 335,000 square miles; population estimated to be slightly below 1,000,000. It is divided under Australian, Dutch, and British control, the distribution being as follows: The northeastern portion, constituting the former Kaiser Wilhelmsland, to Australia; the western part, to 140° E. longtitude, to the Dutch East Indies; the southeastern part is the British colony of Papua. See DUTCH EAST INDIES, GERMAN NEW GUINEA, and PAPUA.

NEW HAMPSHIRE. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 443,083. The estimated population on July 1, 1927, was 455,000. The capital is Concord.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927

Crop	*Year*	*Acreage*	*Prod bu.*	*Value*
Hay	1927	480,000	605,000[a]	$9,774,000
	1926	486,000	549,000[a]	10,311,000
Potatoes	1927	12,000	1,800,000	2,520,000
	1926	11,000	1,815,000	3,086,000
Corn	1927	15,000	615,000	646,000
	1926	15,000	645,000	645,000

[a] tons.

Mineral Production. Stone, the leading mineral product of the State, was produced to a total of 130,120 short tons in 1925, the latest year of available record; in 1924, to the total of 93,340 tons. The product in 1925 had a value of $1,712,138; in 1924, of $1,556,598. Of mica, in regard to which the State held second rank as a producer, the yield for 1925 was valued at $246,383; for 1924, at $98,235. Clay products for 1925 were valued at $828,541; for 1924 at $868,444. The total value of the State's mineral production in 1925 was $3,464,837; in 1924, $3,378,165.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $5,622,532; their rate per capita was $12.41. They included $590,457 apportioned for education. Totals not included in the above, of $96,843 in interest and of $1,759,628 in permanent improvement outlays, brought the aggregate of State expenditure to $7,749,003. Of this, $2,649,721 was for highways; $1,626,117 being for maintenance and $1,023,604 for construction.

Revenue receipts were $7,199,558; or per capita, $15.89. Of their total, property and special taxes yielded 43 per cent, attaining the per capita rate of $6.83. Earnings of departments and compensation paid the State for officials' services supplied 8.7 per cent of revenue; 37.8 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $1,830,456, or $4.04 per capita. Property subject to ad valorem taxation bore a valuation of $673,250,335. State taxes levied thereon were $3,064,587, or $6.77 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 1,197.79. No new construction in 1927 was reported.

Education. The development of four-year curricula in the State normal schools, for the training of high school teachers, was reported by the State Commissioner of Education, in the *Journal* of the National Education Association. The school population of the state, according to a school census of October, 1926, was 89,577 children between the ages of 5 and 16 years. There were enrolled in the public schools in the school year 1926–1927, 76,453 pupils. Enrollment in private schools was 25,907. Those enrolled in public elementary schools numbered 59,743; in public high schools, 12,599. State and local expenditures on public education (and on mothers' aid) attained $7,298,454. Salaries of teachers averaged, for men, $2,144.81 in high and $1,528.06 in elementary schools; for women, $1,463.46 in high and $1.044.20 in elementary schools.

Charities and Corrections. The State Board of Charities and Corrections has wide powers over the care of orphan and dependent children, and likewise supervises and reports on almshouses, jails, reformatories, houses of correction, hospitals and county farms. The State institutions, with their populations on June 30, 1926, were: New Hampshire State Hospital, Concord, 1570; Laconia State School (feeble-minded children), Laconia, 420; New Hampshire State Industrial School, Manchester (delinquent boys and girls), 181; New Hampshire State Prison, Concord, 135; New Hampshire Soldiers' Home, Tilton; New Hampshire State Sanatorium, Glencliff (consumptives), 85. Tuberculosis patients in advanced stages were maintained by State appropriation at a private sanatorium in the town of Pembroke. Prisoners admitted to State prison in 1926, as reported by the U. S. Department of Commerce, numbered 33; the number of patients in State hospitals for mental diseases on Jan. 1, 1927, was 1,560.

Legislation. Convening in regular biennial session, the State Legislature failed to pass a bill modifying the State primary system. After the floods of the first week of November, Governor Spaulding called a special session of the Legislature. This session convened November 29, and adopted measures recommended by the Governor, in order to furnish means for the restoration or replacement of damaged highways and bridges. The gasoline tax was increased to 4 cents a gallon, from 3 cents, the change to take effect January 1. An issue of $3,000,000 of State bonds was authorized, and it was made possible to apply the added revenue from the gasoline tax to the gradual extinction of this issue.

Political and Other Events. Governor Spaulding was inaugurated January 6. The Amoskeag Company, long ranked as foremost among the manufacturers of textiles in New England, and having its headquarters at Manchester, rejected an offer reported to have been of $42,000,000, for its properties. The stockholders at a meeting October 5 determined to continue operations, in spite of the New England textile depression and the receipt of the purchase offer, presumably based in great part on the company's hydro-electric resources. In the New England floods of the first week of November the Pemigewasset River at Plymouth reached a height of 28 feet, much the greatest recorded in 41 years. Flood damage estimated at nearly $3,000,000 for public property alone was done in the State.

Officers. Governor, Huntley N. Spaulding; Secretary of State, Hobart Pillsbury; State Treasurer, Henry E. Chamberlin; Attorney-General, Jeremy R. Waldron; Commissioner of Education, Ernest W. Butterfield.

Judiciary. Supreme Court: Chief Justice, Robert J. Peaslee; Associate Justices, John E. Allen, Thomas L. Marble, Oliver W. Branch, Leslie P. Snow.

NEW HAMPSHIRE, University of. A State institution of higher education at Durham, N. H.; founded in 1866 at Hanover, N. H., as a part of Dartmouth College, transferred to Durham as State College in 1893, and made the State University in 1923. It consists of a college of liberal arts, a college of agriculture, and a college of technology. The 1927–28 enrollment was 1601, which comprised 1127 men and 474 women. The summer session had a registration of 288 students. The faculty numbered 137. The endowment amounted to $1,030,000, and the income for the year totaled $1,417,449. The college year 1925–26 was the first under the millage law of 1925, which provides an annual amount equal to one mill for each dollar for the assessed valuation of the State. This fund, which in 1926–27 amounted to $638,493.21, together with income from other sources, is sufficient for the maintenance of the institution and for the gradual construction of a complete physical plant in accordance with a comprehensive plan for the development of the University. In 1927 a $200,000 classroom building was completed. The library contained 55,000 volumes. President Edward Morgan Lewis, M.A., LL.D., assumed his duties Sept. 1, 1927.

NEW HEBRIDES, hĕb′rĭ-dēz. A group of islands in Melanesia, including the following islands; Espiritu Santo, Mallicolo, Efate or Sandwich Island, Epi, Erromanga, Tanna, Tutuna or Eironnan, and Aneityum. The group is under the joint administration of France and Great Britain, according to conventions of February, 1906, and Mar. 18, 1922. The interests of British, French, and natives are guaranteed; the conditions of land holding in the islands are fixed; and the regulation and recruitment of labor provided for. The area is approximately 5700 square miles and the population about 60,000 of whom, in 1925, 232 were British and 650 French. Many missionary schools have been established, chiefly by the Presbyterian faith. The land for the most part has not been cleared, but large tracts have been settled in the interior. The area under cultivation of the principal crops in acres in 1925 was as follows: Coconuts, British, 35,000, French, 25,110; coffee, British, 200, French, 2-425; maize, British, 500, French, 882; cotton, British, 2500, French, 4115; cocoa, British, 1250, French, 7005. Bananas, oranges, and all tropical fruits grow well. Trade is chiefly with Sydney and New Caledonia. The British imports in 1925 amounted to 6,107,509 francs and the French 15,896,723 francs. The combined exports were valued at 31,115,143 francs, of which about one-fourth were British. The chief imports are provisions, clothing, metals, and furniture and the chief exports are corn, copra, coffee, cotton, coconuts, and cacao. The joint revenue in 1925 was 1,420,614 francs and expenditure 852,748 francs. British revenue in 1925 amounted to £532 and expenditure to £16,622. Direct steamship communication has been established with France, via Tahiti and Panama. The British High Commissioner is Sir Eyre Hutson; French High Commissioner, M. Guyon; British Resident Commissioner, G. B. Smith-Rewse; French Resident Commissioner, M. Ballot (acting).

NEW JERSEY. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 3,155,900. The estimated population on July 1, 1927, was 3,749,000. The capital is Trenton.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1925 and 1926:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	274,000	487,000[a]	$8,398,000
	1926	266,000	416,000[a]	8,212,000
Potatoes	1927	57,000	9,177,000	10,095,000
	1926	50,000	7,250,000	11,238,000
Sweet potatoes	1927	15,000	1,890,000	2,268,000
	1926	17,000	2,465,000	2,958,000
Corn	1927	179,000	7,160,000	6,086,000
	1926	188,000	8,648,000	6,918,000
Wheat, winter	1927	60,000	1,380,000	1,725,000
	1926	60,000	1,328,000	1,742,000
Oats	1927	49,000	1,764,000	935,000
	1926	50,000	1,650,000	825,000
Peaches	1927	.....	2,304,000	3,456,000
	1926	.....	3,000,000	1,890,000

[a] tons.

MINERAL PRODUCTION. Clay products formed in 1925 the greater part of the State's mineral production, and of these the State was the third largest domestic producer. Their total value, for 1925 was $46,010,624; for 1924, $46,414,167. The chief part of this production came under the head of pottery, totaling in 1925, $24,399,771. Zinc, the State's second most important mineral product, furnished most of the remainder of the yearly production total. There were mined in 1926, 161,258,000 pounds of recoverable zinc; in 1925, 178,522,000 pounds. Iron mines in the State continued to produce on a minor scale, shipping in 1926, 212,152 long tons of ore, as compared with 164,523 tons in 1925. Iron ore produced in 1926 was valued at $925,403; in 1925, at $678,021. Clay was produced to a value of somewhat less than $1,500,000 a year. The total value of the mineral production of the State in 1925 was $76,761,313; in 1924, $75,-271,009.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $43,277,237; their rate per capita was $11.89. They included $16,310,928 apportioned for education. Totals not included in the above, of $2,754,156 in interest and of $27,-535,509 in permanent improvement outlays, brought the aggregate of State expenditure to $73,566,902. Of this, $30,229,334 was for highways; $6,481,535 being for maintenance and $23,747,799 for construction.

Revenue receipts were $68,615,205; or per capita, $18.85. Of their total, property and special taxes yielded 62.7 per cent, attaining the per capita rate of $11.81. Earnings of departments and compensation paid the State for the services of officials supplied 5.8 per cent of revenue; 19.7 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles.

Net State indebtedness on June 30, 1926, was $57,350,885, or $15.76 per capita. Property subject to ad valorem taxation bore a valuation of $5,771,603,846. State taxes levied thereon were $32,779,872, or $9.01 per capita.

TRANSPORTATION. The number of miles of railroad line in the State Jan. 1, 1927, was 2,-297.36. There were constructed in 1927, according to the *Railway Age,* 1.10 miles of first, 9.23 miles of third and 8.27 miles of fourth or other track.

EDUCATION. Among the features of the year's educational development were the organization of normal school training for high school teachers; activity in the training of teachers in actual service; the extension of the junior high school movement. An increase of vocational education of adults was reported. The State Normal School at Montclair was converted into a normal college, to serve in the preparation of teachers for the public secondary schools. The school population of the State in 1927 was estimated at 788,188. There were enrolled in the day public schools 739,010 pupils. Of these, 638,162 were enrolled in common schools (special schools and classes excepted) and 94,081 in high schools. The operating expenses of the schools for the year ending June 30, 1927, were $66,407,736. The salaries of all teachers averaged $1,907.95.

Charities and Corrections. A State Department of Institutions and Agencies has full charge of charitable, reformatory, correctional and penal institutions, boards and commissions. It includes a division of Parole and Domestic Relations. Institutions under its supervision are: State hospitals at Trenton and Greystone Park; Sanatorium for Tuberculous Diseases, Glen Gardner; State Village for Epileptics, Skillman; State Board of Children's Guardians, Jersey City; State colonies for Feeble-Minded Males, at New Lisbon and Woodbine; State Institution for the Feeble-minded, Vineland; New Jersey Home for Disabled Soldiers, Kearny; New Jersey Home for Disabled Soldiers, Sailors, Marines, and their Wives and Widows, Vineland; State Prison, Trenton; New Jersey Reformatory, Rahway; Reformatory for Women, Clinton; State Home for Boys, Jamesburg; State Home for Girls, Trenton.

Legislation. The Legislature convened in regular annual session January 11. Governor Moore in his message recommended action on the report of his Water Policy Commission; the formation of a comprehensive plan of highway improvement to cost some $163,500,000; the adoption of means for raising about half of this amount on issues of indebtedness. The Legislature enacted in all more than 300 measures. Among the most notable laws passed were those relating to highway improvement and to taxation. A two cents a gallon tax on sales of motor gasoline was voted, and per contra, the personal property tax on licensed motor vehicles was abolished. This was done by repealing an act under which municipalities had possessed the power to levy such a tax. Governor Moore refused approval of the gasoline tax measure and of the automobile tax repeal, and both bills were repassed over his dissent and so put on the statute books. A measure providing for the issue of $30,000,000 of State bonds for the purpose of highway construction was passed.

Important changes were made in the traffic code. It was required that all automobiles coming upon a main thoroughfare from a side street or road must come to a full stop. A driver following a trolley car was required to keep fully ten feet behind it, and to turn from the tracks when the car came to a stop. A tax of 1½ cents a mile was laid on the mileage run within the State by motor vehicles engaged in interstate traffic, and owners of such vehicles were required to file with the State Motor Vehicle Department monthly statements of such mileage, with payment of tax therefor. The acceptance of an automobile as bail for the driver was forbidden.

Proposals offering five amendments to the State constitution were voted by the legislators for presentation to the people at a special election. These were: (1) an amendment to enable communities to make their own zoning regulations; (2) an authorization of power to create water supply, sewerage, drainage and meadow reclamation districts with power to issue indebtedness and to raise taxes for service of debt, for the purposes of improvements; (3) a simplification of the process for amendment of the State constitution; (4) a change in the duration of the terms of service of legislators and Governors, by which the sessions of the Legislature would be biennial and Governors would serve for four years, and would be elected in years to coincide with the election of the President of the United States; (5) a clarification of the provision for the appointment of judges of the Court of Common Pleas. Occasioned by a dispute over the relative merits of the wire cable and the eye bar for the construction of the Hudson River Bridge, a measure to give the State House Commission power of veto over acts of the Port of New York Authority was enacted. Later, in accordance with the wish of New York, it was repealed (April 1). Crime legislation included a measure rendering it permissible but not mandatory to impose life sentences on habitual criminals; one obliging second offenders to serve sentences previously commuted; elimination of the minimum term provision in the case of life sentences; increase of penalties for assault, robbery and breaking and entering when armed; increase of restriction on the sale of machine guns. A commission was created to study the probation system. Among other bills passed were those providing: equalization of dower and courtesy; regulation of the establishment of branch banks; measures to stop the sale of fraudulent securities; appropriation for a bridge between Bayonne and Port Richmond; authority to the Boxing Commissioner to decide the allowable admittance charge for boxing bouts. The session failed to ratify a treaty with the States of New York and Pennsylvania for the allocation of the use of the waters of the Delaware River. See City Planning.

Political and Other Events. At a special election on September 20, voters of the State passed on five proposed constitutional amendments. They rejected four, these being Nos. 2 to 5, as given above, under *Legislation*. One amendment proposal (No. 1, above), to enable municipalities other than counties to make and enforce zoning ordinances, was ratified. The proposed amendment bearing on the time of election of a Governor was urged by the Republican Party and warmly opposed by the Democrats, who had been able to elect a succession of Governors in non-Presidential years, although the State usually had gone Republican for President.

At the regular State election on November 8, the Republican majority in both houses of the Legislature was maintained, and the issue of $30,000,000 of State bonds to render possible the completion of the highway programme in 12 years was approved. Members of the State Constabulary accused of criminal acts in connection with an attack in the previous year on a farm house near Jutland, occupied by Timothy Meaney, in which his sister was shot to death and a brother wounded, were tried in June. A captain and one trooper were convicted of manslaughter, and another trooper was convicted of assault and battery. In the earlier part of the year agitation against the old State Sunday enforcement law was carried on at Red Bank, Plainfield and elsewhere, largely on behalf of moving picture houses hopeful that the law might be amended in such manner as to enable them to give Sunday performances; a bill for the amendment of the law failed of passage at the Legislature session.

The Holland Vehicular Tunnel, passing under the Hudson River between Jersey City and the Borough of Manhattan in the City of New

York, completed in the year, was opened November 11, and carried over 52,000 motor vehicles without serious difficulty or delay in its first 24 hours of regular traffic. Representatives of the State joined those of New York and of Pennsylvania January 13 in signing a treaty for the division among the three States of the rights in the water of the Delaware River, 600,000,000 gallons a day being allowed New Jersey, the like quantity to New York, and to Pennsylvania 900,000,000 gallons; the Legislature however failed to ratify this treaty. A system for the permanent registration of voters in municipalities of over 15,000 population—personal registration not being required elsewhere—went into effect at the beginning of the year.

OFFICERS. Governor, A. Harry Moore; Secretary of State, John F. S. Fitzpatrick; Treasurer, William T. Read; Comptroller, Newton A. K. Bugbee; Attorney-General, Edward L. Katzenbach.

JUDICIARY. Chancellor, Edwin Robert Walker; Supreme Court: Chief Justice, William S. Gummere; Justices: Samuel Kalisch, Frank S. Katzenbach, Jr., Thomas W. Trenchard, Charles W. Parker, Charles C. Black, James F. Minturn, Luther A. Campbell, Frank T. Lloyd.

NEW JERUSALEM, CHURCH OF THE. An organization which is also known as the New Church, and popularly called Swedenborgian, because based upon the statement of Christianity set forth in the writings of Emanuel Swedenborg, Swedish scientist, philosopher, theologian, and seer (1688–1772). The two bodies that now compose it are the General Convention of the New Jerusalem and the General Church of the New Jerusalem, the former organized in Philadelphia in 1817, and the latter, which differs from the former mainly in its stricter attitude toward Swedenborg's writings (considering them as the Word of the Lord revealed at His Second Coming) having separated from the parent body in 1891. The first society of the New Church in the United States was founded in Baltimore in 1792. The polity of the church is a modified episcopacy; the worship of the church is generally liturgical, chants being extensively used. Missionary work is carried on in Denmark, Sweden, Germany, France, Switzerland, Lettland, Czechoslovakia, Austria, South Africa, India, Japan, and British and Dutch Guiana.

The amount expended for missions and benevolences during 1926 was $19,070. In 1926 the General Convention consisted of about 5442 communicant members, united into 85 societies, territorially organized as 12 associations and seven societies. The ministerial membership was 112. Educational institutions of the New Church include a theological school at Cambridge, Mass., a Junior College at Urbana, Ohio, and the Waltham School for Girls, Waltham, Mass. Periodicals include the *New-Church Messenger*, weekly, Brooklyn, N. Y.; the *New-Church Review*, quarterly, Boston, Mass.; the *New-Church League Journal*, monthly, Boston, Mass.; and *The Helper*, weekly, Philadelphia, Pa. The Convention meets annually.

The General Church, in 1927, had a worldwide membership of 1911, with 39 ministers and 24 societies, 15 of which were in the United States and Canada, two in England and others in France, Belgium, Holland, Sweden, Natal, New South Wales, and Brazil. A Native Mission was maintained in South Africa. Eight societies conducted parochial schools for the elementary grades. The headquarters are at Bryn Athyn, Pa., where the Bishop resides and there is a cathedral church. In addition there is the Academy of the New Church, with departments from kindergarten to junior college and theological school, the enrollment for 1927–28 being 275. The General Church holds a triennial General Assembly, the Councils meet annually, and the Consistory weekly. Among its periodicals are *New-Church Life*, the official monthly, *New-Church Sermons*, *The Journal of Education*, and the *Bulletin*.

NEW MEXICO. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 360,350. The estimated population on July 1, 1927, was 392,000. The capital is Santa Fe.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	226,000	464,000[a]	$6,158,000
	1926	212,000	468,000[a]	5,566,000
Corn	1927	166,000	2,490,000	2,316,000
	1926	221,000	4,420,000	3,845,000
Wheat, winter	1927	25,000	150,000	172,000
	1926	212,000	4,876,000	5,364,000
Wheat, spring	1927	30,000	420,000	504,000
	1926	37,000	777,000	878,000
Grain sorghum	1927	171,000	2,394,000	1,915,000
	1926	195,000	4,095,000	1,638,000
Beans, dry	1927	195,000	975,000	2,828,000
	1926	195,000	838,000	2,179,000
Cotton	1927	95,000	70,000	6,930,000
	1926	120,000	75,000	4,612,000

[a] tons.

MINERAL PRODUCTION. Production of copper, the chief element in the State's yearly mineral output, was exceptionally high in 1926. There were produced 82,848,096 pounds of copper, as compared with 76,467,245 pounds in 1925. Copper produced in 1925 had a total value of $10,852,751. There were produced in 1926, 20,105 fine ounces of gold, and in 1925, 29,572 fine ounces; in value, $415,600 in 1926 and in 1925, $611,300. Silver production was, in 1926, 496,634 fine ounces as against 799,673 fine ounces in 1925; in value, $309,900 in 1926 and in 1925, $554,973. Lead production in 1925, the latest year of available statistics, was 3210 short tons; in 1924, 1817 short tons; in value, $558,545 in 1925 and in 1924, $290,761. There were produced in 1925, 9246 short tons of zinc and in 1924, 10,380 short tons; in value, $1,405,415 in 1925 and in 1924, $1,349,348. Of coal, next in importance after the metals, there was mined in 1926, 2,817,923 net tons; in 1925, 2,556,851 tons. Coal mined in 1926 attained a value of $8,916,000; in 1925, of $8,611,000. Petroleum production increased sharply to 1,627,000 barrels for 1926, from 1,060,000 barrels for 1925; in value it totaled $3,300,000 for 1926 and for 1925 $1,815,000. The total value of the State's mineral production in 1925 was $25,548,804; in 1924, $23,913,528.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $4,040,042; their rate per capita was $10.47. They included $893,333 apportioned for education. Totals not included in the above, of $140,414 in interest and of $1,742,592 in permanent improvement outlays, brought the aggregate of State expenditures to $5,923,048. Of this, $2,293,053 was for highways; $679,341 being for maintenance and $1,613,712 for construction.

Revenue receipts were $6,717,199; or per capita, $17.40. Of their total, property and special taxes yielded 24.3 per cent, attaining the per capita rate of $4.23. Earnings of departments and compensation paid the State for officials' services supplied 16.2 per cent of revenue; 17.6 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $3,827,497, or $9.92 per capita. Property subject to ad valorem taxation bore a valuation of $313,561,903. State taxes levied thereon were $1,856,194, or $4.81 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 2,998.10. There were built in 1927, according to the *Railway Age*, 0.43 miles of first and 13.95 miles of second track.

EDUCATION. The State did away with the need to employ teachers holding emergency certificates, according to the report of Lois Randolph, State Superintendent, in the *Journal* of the National Education Association. The Legislature made appropriation for a supervisor of high schools and a supervisor of rural schools.

CHARITIES AND CORRECTIONS. The correctional and charitable activities of the State in 1927 were not organized under a single administrative agency. The following institutions functioned independently of one another: School for the Deaf, Sante Fe; Institute for the blind, Alamogordo; New Mexico Insane Asylum, Las Vegas; Reform School, Springer; State Penitentiary, Santa Fe; State Miners' Hospital, Raton; Home and Training School for Mental Defectives.

POLITICAL AND OTHER EVENTS. At the election on November 8, the proposal to change the term of the Governor from two years to four was approved. The change was to occur in 1928, making the election of a Governor coincide with the Presidential election. In February started in Albuquerque a movement to change the name of the State from New Mexico to Albuquerque. Litigation with Texas proceeded during the year, over the issue of the proper boundary along the line of the Rio Grande River, which had changed its course at certain points after the settlement of the original boundary. Bronson Cutting, Republican, of Santa Fe was appointed United States Senator, December 29, by Governor Dillon to fill the unexpired term of Andrieus Aristieus Jones, deceased.

OFFICERS. Governor, R. C. Dillon; Lieutenant-Governor, Edward Sargent; Secretary of State, Jennie Fortune; State Auditor, Miguel A. Otero, Jr.; State Treasurer, Warren R. Graham; Attorney-General, Robert C. Dow; Superintendent of Public Instruction, Lois Randolph.

JUDICIARY. Supreme Court: Chief Justice, Frank W. Parker; Associate Justices, C. M. Botts, Samuel Bratton, John C. Watson.

NEW SOUTH WALES. One of the six original states of the Commonwealth of Australia; located in the southeast part of the continent; bounded on the north by Queensland; on the south by Victoria; on the east by the Pacific Ocean; and on the west by South Australia. Area, inclusive of the Federal Territory, 310,372 square miles; population, including aborigines, according to the census of 1921, 2,101,968. The Federal Territory in 1921 had an area of 912 square miles and 2572 inhabitants. Sydney, the capital, had a population in 1921 of 905,047, including suburbs and shipping. At the end of 1927 the population was estimated at 2,360,326, for all of New South Wales, and 1,039,390 for Sydney. Other towns with their populations at the end of 1925 were: Newcastle and suburbs, 98,050; Broken Hill, 23,760; Auburn, 16,790; Parramatta, 16,030; Granville, 16,110; Bankstown, 15,850; and Lithgow, 13,310. The movement of population in 1925 was: Births, 54,615; deaths, 20,823; marriages, 18,522. During the same year the immigrants numbered 55,201 and the emigrants, 42,208. Education is controlled by the state and instruction is compulsory between the ages of seven and 14. At the beginning of 1926 there were 3216 government schools, with 10,777 teachers, with 336,810 pupils enrolled, and an average attendance of 269,214. There were 696 private schools, of which 479 were Roman Catholic, with 2783 teachers and 66,486 pupils.

The chief agricultural crop is wheat and the principal fruit crop is oranges. Other grains and other citrous fruits, potatoes, tobacco, bananas and apples, are raised. Wool, tallow, bacon and hams are important products. The production of wool in New South Wales during the year ended June 30, 1927, amounted to 495,820,000 pounds —91,165,000 pounds or 22.5 per cent greater than the previous record total reached in 1911. The value of the wool clip was estimated at £35,237,000. On June 30, 1925, the state had 47,100,000 sheep, 2,876,254 cattle, 647,503 horses, and 339,669 swine. The estimated value of forestry products for the fiscal year 1925 was £209,733.

The mineral production of New South Wales in 1925 was valued at £19,800,000 and constituted a record for the state, being over £1,000,000 in excess of that for the best previous year. The annual value of the minerals produced in New South Wales is more than twice that assigned to the combined output of all the other states of the Commonwealth. The principal factors are coal, coke, silver, lead, zinc, and limestone cement. From a record output of 11,618,216 tons in 1924, the production of coal dropped slightly to 11,426,199 tons in 1925 and thence to 10,885,766 in 1926. The value of the coal at the pit mouth, however, rose from $45,270,690 in 1925 to $45,922,820 in 1926, because of increases in price. About 25,000 men are employed in the collieries. In 1926 the State produced 597,663 tons of coke valued at $4,576,530.

The external commerce in 1926 was as follows: Imports, oversea, £64,005,975; exports, oversea, £54,008,745. On June 30, 1926, 5742 miles of government railways were open; the revenue for 1925–26 was £16,939,032; the expenditure, £12,519,993; the number of passengers carried, 130,725,581. There are seven private railways having a total mileage of 112 miles (mainly colliery lines).

Executive power is vested in a governor assisted by a cabinet, and legislative power in a bicameral legislature, consisting of a legislative council and a legislative assembly. The legislative council which must not consist of less than 21 members is appointed for life by the crown, and consisted of 97 members in 1926. There are

90 members in the legislative assembly. Governor in 1927, Admiral Sir Dudley R. S. De Chair; prime minister and colonial secretary, John Thomas Lang.

On May 26, the bitter strife which for some time had divided the Labor Ministry in New South Wales resulted in the dismissal of his colleagues by Premier Lang. The prime minister himself resigned but was immediately commissioned to form a new government. Lang was bitterly denounced by the Right Wing of the Labor party as an out and out Communist. On October 15 Lang and his Labor government were compelled to resign. As a result of the elections of October 8, 35 Nationalist and 13 members of the Country party were elected which gave the opposition a majority of six over the 42 Labor members elected. The new premier was T. R. Bavin, the leader of the Nationalist-Country Party coalition.

NEW YORK. POPULATION. A census by the State was taken in 1925. This showed a population of 11,162,151, compared with 10,385,227 by the Federal Census in 1920. The population of New York City increased from 5,620,048 in 1920 to 5,873,356 in 1925. The Borough of Manhattan decreased from 2,284,103 in 1920 to 1,945,029 in 1925. All the other boroughs increased their populations. The estimated population on July 1, 1927, was 11,423,000. The capital is Albany.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	4,918,000	7,889,000[a]	$83,277,000
	1926	4,915,000	6,469,000[a]	96,708,000
Corn	1927	663,000	22,542,000	21,640,000
	1926	670,000	23,450,000	20,167,000
Potatoes	1927	270,000	28,620,000	85,775,000
	1926	248,000	29,016,000	46,426,000
Oats	1927	1,000,000	35,000,000	19,250,000
	1926	1,017,000	34,578,000	17,289,000
Wheat, winter	1927	289,000	6,069,000	7,586,000
	1926	270,000	4,725,000	6,237,000
Wheat, spring	1927	12,000	222,000	289,000
	1926	9,000	162,000	207,000
Barley	1927	188,000	5,452,000	4,362,000
	1926	179,000	5,066,000	3,800,000
Buckwheat	1927	213,000	4,473,000	3,757,000
	1926	190,000	3,591,000	3,196,000
Apples	1927	......	13,600,000	19,270,000
	1926	......	40,875,000	20,350,000

[a] tons.

MINERAL PRODUCTION. The production of pig iron contributed the largest item to the list of the state's mineral products for 1925, and the output of this product thereafter rose to 2,389,665 long tons for 1926, from 2,151,036 tons for 1925. The value of pig iron produced was $44,970,196 for 1926 and for 1925 $40,435,443. Coke was produced to the quantity of 2,827,805 short tons in by-product ovens in 1926, as against 2,219,409 tons in 1925; in value, $17,455,226 for 1926 and for 1925, $12,968,066. Cement production was 8,795,768 barrels in 1926; in 1925, 8,769,584 barrels. In value, cement shipments totaled $14,864,066 in 1926 and in 1925 $14,967,642. Of gypsum there were produced in 1925, the latest year of available statistics, 1,730,254 short tons; in 1924, 1,474,491 tons; in value, $16,219,906 in 1925 and in 1924, $14,329,246. Clay products totaled $24,550,751 in 1925; in 1924, $26,140,688. The production of ferro-alloys was 115,764 long tons in 1925 and in 1924 86,230 tons; in value, $12,811,534 in 1925 and in 1924, $8,355,416. Of salt there were produced 2,001,580 short tons in 1926; in 1925, 2,053,970 short tons. The product had a value of $6,564,829 for 1926 and for 1925 of $7,133,244. Stone production was important, being 8,869,200 short tons in 1925 and 7,557,320 short tons in 1924; in value, $12,358,238 in 925 and in 1924, $10,981,814. Petroleum, natural gas, sand and gravel, iron ore and lime formed important elements in the aggregate of the State's mineral output. The total mineral production of the State, duplications eliminated, was $102,035,557 for 1925; for 1924, $95,435,299.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $134,937,125; their rate per capita was $12.01. They included $42,900,554 apportioned for education. Totals not included in the above, of $13,269,511 in interest and of $37,395,329 in permanent improvement outlays, brought the aggregate of State expenditure to $185,601,965. Of this, $48,305,330 was for highways; $22,951,019 being for maintenance and $25,354,311 for construction.

Revenue receipts were $193,939,730, or per capita, $17.27. Of their total, property and special taxes yielded 54.6 per cent, attaining the per capita rate of $9.43. Earnings of departments and compensation paid the State for officials' services supplied 3.7 per cent of revenue; 31.3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles.

Net State indebtedness on June 30, 1926, was $222,554,217, or $19.81 per capita. Property subject to ad valorem taxation bore a valuation of $19,018,981,378. State taxes levied thereon were $30,364,423, or $2.70 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 8,358.10. There were built in 1927, according to the *Railway Age*, 3.49 miles of first and 11.39 miles of second track.

EDUCATION. Large State appropriation measures were enacted at the 1927 session by the Legislature for the remuneration of teachers in the public schools of the State. The law was not a typical equalization measure, as it apportioned the distribution among the subdivisions of the State generally, the wealthier ones, such as New York City, sharing with the less fortunate. It was estimated that in that city the law would render it possible to pay up to $4656 a year to high school class room teachers, and up to $3654 in the elementary grades. Municipal legislation increased the salaries of teachers in New York City in December. The school population of the State in the scholastic year 1925–1926, as based on the State census, was 2,633,167 individuals between the ages of 5 and 18 years. There were enrolled in the public schools in that year, duplications eliminated, 1,961,375 pupils. Of these, 1,643,215 were in the elementary schools and 318,160 in high schools. Total expenditures for education in the schools of the State were $257,672,042. The salaries of teachers averaged $2,046.12.

CHARITIES AND CORRECTIONS. These two activities of the State, as organized in 1927, were under separate departments. The Department of Charities consisted of a State Board of Charities of 15 members, from the several judicial districts, and had as the chief executive of the Department a Director of Charities appointed by the Board. Various divisions had the functions of care of dependent adults, child welfare, hospitals and sanatoria, the blind, inspection of institutions and administration of State institutions. Such State institutions were: the State Training School for Girls, Hudson; State Agricultural and Industrial School, Industry (boys); Thomas Indian School, Iroquois; State Hospital for Incipient Tuberculosis, Raybrook; State Orthopædic Hospital, West Haverstraw; State Women's Relief Corps Home, Oxford (soldiers' and sailors' widows); the New York House of Refuge, while under private direction, received State support. The State Department of Mental Hygiene had control of institutions for mental treatment.

The Department of Correction, Raymond F. C. Kieb, Commissioner, had charge of the penal institutions of the State. These and their numbers of inmates, as stated in 1927, were: Auburn Prison, 1438; Clinton Prison, 1564; Great Meadow Prison, 1047; Sing Sing Prison, Ossining, 1590; Dannemora State Hospital, 602; Matteawan State Hospital, 1006; New York State Reformatory, Elmira, 1204; Institution for Defective Delinquents, Napanoch, 598; New York State Reformatory for Women, Bedford Hills, 325; Albion State Training School, 228; State Prison for Women, Auburn, 101.

The number of patients in State hospitals for mental disease on Jan. 1, 1927, was stated by the U. S. Department of Commerce as 43,538.

LEGISLATION. The Legislature convened in regular annual session January 5. It voted the submission to the people of nine amendments to the State constitution, for their ratification in November, 1927. Of these the first required the Governor to submit to the Legislature a budget comprising a complete plan of State expenditure for the ensuing year and of estimated revenues, and with this plan to submit a bill or bills for the required appropriations; the power of the Legislature to alter appropriations thus proposed was limited. Another amendment proposal rendered the debt total of all cities, as computed to ascertain margin under debt limit, net of water supply debts, and further permitted the City of New York to incur debt up to $300,000,000 for construction and equipment of rapid transit lines, not to be reckoned in computation of its borrowing power as based on assessed valuations. Proposal Three rendered it possible for counties instead of localities to bear a portion of the expense jointly incurred by railroads, the State and local government bodies for the elimination of railroad grade crossings. Proposal Four raised the salary of the Governor to $25,000; of the Lieutenant-Governor to $10,000; and of each member of the Legislature to $2500 a year. Proposal Five made the Governor the head of the Executive Department. Proposal Six set the terms of the Governor and other elective State officials and of State Senators at four years, those of Assemblymen at two years, and rendered the election of Governors and other State officers coincident with that of Presidents, starting with 1928. Remaining amendment proposals were of minor significance.

With regard to criminal law, there were enacted some seven more of the measures recommended by the Baumes Commission. whose powers the Legislature again extended. These rendered life imprisonment the minimum sentence for fourth offenders found guilty of armed felony, instead of a sentence from 25 years to life; enabled the prosecution to appeal cases, except in case of the verdict of "not guilty"; and required a judge to have a copy of a defendant's criminal record before he should pass sentence. A bill to place further restriction on the sale of fire-arms in the State failed of passage. A measure restricting the allowed weekly hours of work for women to 48, save for an added 78 hours in any one year, was enacted. State aid to the support of public schools was increased, in accordance with the recommendations of the Friedsam commission, by some $16,500,000, of which the chief part under the terms of the increase was to go to schools within the city of New York.

Among the measures passed many had particular reference to the City of New York. One of these provided a commission to revise the tenement house law. The emergency rent laws were once more extended for the period of a year. An appropriation of $1,000,000 was made as the State's half of the year's contribution to the requirements of the Board of Port Authority, previously created by inter-State treaty, for work on the proposed bridge over the Hudson River between upper Manhattan and the New Jersey shore. In order to offset the action of the Legislature of New Jersey, to like effect, the Legislature of New York granted the Governor a power of veto over acts of the Board of Port Authority. Licenses of theatres presenting immoral plays were by enactment rendered revocable.

Provision was made for the cession to the city of New York of the State land on Ward's Island, to be vacated by the State on account of the removal of institutions to other sites, and to be employed by the city for the location of a plant for sewage disposal. Authority was granted the City of New York to remove the elevated railroad structure from Fulton Street in Brooklyn. With regard to the New York City water supply plans, the tri-State compact as to the use of the waters of the Delaware River was approved; the other States concerned, however, did not ratify it. A bill to give the city the right to proceed with the development of a water supply system in several counties east of the Hudson River, in accordance with a plan alternative to the Delaware River development, failed of passage.

Among measures that failed to reach the statute books were: a bill to form a new judicial district in the area of Greater New York, vetoed by the Governor; the Governor's own plan of water power development, through a commission to investigate and, if feasible, to plan, public power development through a quasi-private corporation with State-backed credit; the veto of a measure of the legislative majority, proposing an investigation of the subject on other terms, the State being left, by the power development deadlock, under the Miller act which favored private power development. The Legislature failed to enact a tax on sales of motor gasoline, to finance the increased school subvention.

POLITICAL AND OTHER EVENTS. At the State election on November 8, nine proposals to amend the State constitution came up for ratification. The contest over one of these, the term-extending proposal, formed the chief feature of the political campaign of the year. (See above, under *Legislation.*) This proposal was rejected by a vote of 1,256,157, against, to 578,863, in favor; or by about 2.3 to 1; adverse majorities being scored not only in New York City but in every county in the State. The proposal had Republican Party support, and was opposed by the Democrats, Governor Smith making a campaign against it, on the ground that it was designed to elect Republicans to the office of Governor on the Republican Presidential voting strength.

The other eight amendment proposals discussed above were all approved. The Republican majority in the Assembly was materially increased. A charter providing a form of government for the populous suburban county of Westchester, with an elected President, Vice President and Commissioner of Finance, was submitted to the voters of that county, and rejected. The City of Buffalo elected a new council, to replace its previous commission government.

The higher courts early in the year passed on the validity of that feature of the Baumes laws as to criminal procedure and penalties which rendered the life sentence on habitual criminals mandatory on judges to pronounce under certain circumstances. The Court of Appeals on February 23 sustained this provision as constitutional, it having been strenuously opposed by some members of the lower courts. The State law limiting the resale price of theatre tickets was declared unconstitutional February 28 by the United States Supreme Court, on the general ground that the State had not in this matter the same power as in dealing with a traffic affecting public utilities or necessities. For the time being, the way seemed open for the resumption of limitless price raising in theatre tickets at New York, but later in the year United States District Attorney Tuttle, in that city, prosecuted the ticket middlemen for failure to pay to the Federal government a virtually punitive tax on excess prices for the tickets they had sold, and compelled many of the dealers to enter into agreements to limit their own prices.

In regard to the status of religion in the public schools, the Court of Appeals took important action by denying, May 10, a suit of the Freethinkers' Society to prevent the school authorities of White Plains from granting school time for religious instruction at private expense to pupils whose parents so desired. The Court of Appeals raised the requirements for law students, by making two years of college or equivalent study obligatory.

The plan of consolidation of State departments adopted with the ratification of the necessary constitutional amendment at the election of November, 1925, went into effect Jan. 1, 1927. The number of elected State officers was reduced to four, the Governor, Lieutenant-Governor, Comptroller and Attorney-General. The office of Secretary of State became appointive. That of State Treasurer was abolished, its functions passing to the Division of Finance in the Department of Taxation and Finance. The office of State Engineer and Surveyor was abolished, and the Division of Engineering in the Department of Public Works assumed its functions. The administrative organization of the State government was grouped chiefly within eighteen departments, as follows: Executive, Audit and Control, Taxation and Finance, Law, State, Public Works, Conservation, Agriculture and Markets, Labor, Education, Health, Mental Hygiene, Charities, Correction, Public Service, Banking, Insurance, Civil Service.

Governor Smith, inaugurated January 1, entered his fourth term of office. In his message to the Legislature, he recommended the passage of resolutions memorializing congress in accordance with the referendum vote of November 1926, in favor of modification of the Volstead law. He pointed out at the same time that the Eighteenth Amendment must be treated as part of the law of the State and that sheriffs and peace officers generally must do their sworn duty and help enforce Federal prohibition laws. With the new executive term a consolidation of State bureaus went into effect, occasioning a reduction in the number of employees. Governor Smith, called on by a New York lawyer, Charles C. Marshall, in the April *Atlantic Monthly*, to state his views as a Catholic on allegiance to church and to State, replied in the next issue of the same periodical, asserting that as a Catholic he placed allegiance to State foremost in all matters relating to his official duty, and denying the authority of the church to control his acts in this sphere. The Governor appointed in February the heads of 14 State departments and agencies; among them were six Republicans.

Following the report of a special commissioner on the conduct of the Presser parole case by the Parole Board and Commissioner of Corrections Long, Commissioner Long resigned, February 9, and was replaced by Raymond F. C. Kieb, who reorganized the Parole Board. Commissioner of Public Works Greene, in a report to the Legislature February 14, asserted that the State Barge Canal had not fulfilled its purpose, that it should be taken over by the Federal government, and that 15 canal terminals that had cost some $7,000,000 and proved of little use should be sold by the State. The Peace Bridge connecting Buffalo and Fort Erie, Ont., was completed, and opened to traffic June 1, thereafter carrying a reported daily average of 12,800 vehicles, on a toll basis.

New York and Vermont signed a treaty May 11 to build jointly a bridge over Lake Champlain. Mrs. Florence E. S. Knapp, former Secretary of State, accused of irregularities in the conduct of the 1925 State census, was the subject of investigation by a special commissioner.

Important progress was made in public structural projects in and about New York City. Samuel Untermyer as special counsel for the Transit Commission conducted in May an investigation of rapid transit lines with a view to gaining information relative to a plan for their unification under public ownership. In September he presented a report recommending the recapture of the Brooklyn-Manhattan subway lines, the purchase by negotiation of the Interborough subway lines, with provision for the Manhattan Elevated, and the leaving of elevated lines in Brooklyn and of surface lines throughout the city in the hands of the present owners; the acquired lines to be owned by the city and to be operated at a five-cent fare. Plans for a Tri-Borough Bridge, to connect Manhattan, Bronx and Queens boroughs, were submitted to the city Board of Estimate March 24, and money was later voted for preliminary work, in anticipation that the State Legislature would later allow the city to create a quasi-private corporation to finance the cost of the project, some $25,000,000, and levy tolls to meet charges.

The Port of New York Authority gained from the Legislatures of New York and New Jersey approval for the construction of a $16,000,000 bridge over the Kill van Kull between Bayonne, N. J., and Port Richmond, on Staten Island, and work on this undertaking was begun. The Port Authority let contracts for the foundations of piers for the Hudson River Bridge, to span the river between Washington Heights in Manhattan and Fort Lee, New Jersey, and ground was broken with ceremonies September 18. The Holland Vehicular Tunnel between Canal Street, Manhattan, and Jersey City was completed, and was opened November 11. It carried on November 13, its first full traffic day, 51,748 vehicles, and in its first fortnight of operation earned $173,914 in tolls.

A city measure was enacted in May granting tax exemption for 20 years on multiple-family houses built by limited dividend corporations. It was expected that land for such housing would be furnished in the City of New York by the city government, which would rent it to the corporations at low rates, in order to promote the elimination of inferior tenements, and which would obtain the land by a process known as excess condemnation. This process consisted in the city's obtaining by condemnation more land than the minimum required for the site of an improvement, such as a public park or a street widening, and subsequently putting the superfluous land to other use. The City of Rochester inaugurated December 1 a subway transit route built in the depression formerly occupied by the bed of the Erie Canal in its passage through the city, which the municipality had acquired in 1922, after the abandonment of the original canal route. See CELEBRATIONS; CITY PLANNING; CRIME.

OFFICERS. Governor, Alfred E. Smith; Lieutenant-Governor, Edwin Corning; Secretary of State, Robert Moses; Comptroller, Morris S. Tremaine; Attorney-General, Albert Ottinger; Commissioner of Education, Frank P. Graves.

JUDICIARY. Court of Appeals: Chief Judge, Benjamin N. Cardozo; Associate Judges, Cuthbert W. Pound, Frederick E. Crane, William S. Andrews, Irving Lehman, Henry T. Kellogg, John F. O'Brien.

NEW YORK UNIVERSITY. A non-sectarian coeducational institution of higher education in New York City; chartered in 1831. It comprises the following divisions: at University Heights, college of arts and pure science, college of engineering, Guggenheim School of Aëronautics; at Washington Square, graduate school, school of law, school of commerce, accounts and finance, Washington Square College, school of retailing, school of education, university extension division, institute of education; at Wall Street division, the graduate school of business administration, and courses in the schools of commerce, accounts, and finance, and of retailing; medical college, on E. 26th Street; and dental college, on E. 23rd Street. The enrollment for the year 1926–27 in all divisions of the University, after deducting all duplications, was 31,657. The enrollment in the different degree-conferring units was as follows: University College of Arts and Pure Science, 866; school of law, 1931; University and Bellevue Hospital Medical College, 449; college of engineering, 476; graduate school, 324; school of education, including both graduate and undergraduate divisions, 2671; school of commerce, accounts, and finance, including the Wall Street division, 1123; Washington Square College, 5545; graduate school of business administration, 479; school of retailing, 544; and college of dentistry, 483. In other divisions the enrollment was as follows: extension division, 2802; department of fine arts, 1574; institute of education, 3059; public health (correspondence) courses, 108; life insurance training courses, 174. The enrollment in the summer school of 1927, held at Washington Square, was 4453. The faculty of the University numbered 1341, for the year 1926–27, including 51 appointments or promotions of professorial rank, made in the previous university year, nine of the new appointments being of the rank of full professor, and 14 promotions being to that rank. The productive funds for the year 1925–26 amounted to $3,604,211.39, and the income to $4,870,415.62. The libraries contained 253,000 volumes. The Nichols Chemistry Building at University Heights, costing $600,000, was completed and was dedicated in the autumn of 1927. Chancellor, Elmer Ellsworth Brown, Ph.D. LL.D.

NEW ZEALAND, zē′land, DOMINION OF. A self-governing British dominion in the southern Pacific Ocean, about 1200 miles east of Australia; consisting mainly of two islands, North and South Islands; but comprising also Stewart Island and Chatham Island and a number of small islands. Capital, Wellington.

AREA AND POPULATION. The total area excluding the annexed islands is 103,568 square miles, distributed as follows: North Island, 44,131; South Island, 58,120; Stewart Island, 662; Chatham Islands, 372; outlying islands, 284. According to the census of 1921 the population was 1,218,913. The population, April 1, 1927, was 1,439,980 for New Zealand proper inclusive of Maoris (64,234); residents of Cook and other annexed islands, 14,088, and of Western Samoa (mandated territory), 42,028. The movement of population in 1926 was: Births, 28,473; deaths, 11,819; marriages, 10,680. New Zealand's great problem, like that of Australia, is the securing of suitable immigrants. To this end the New Zealand government coöperates very closely with Great Britain, as it is the policy of the Dominion to restrict its immigrants, so far as possible, to British stock and the policy of Great Britain to keep its emigrants within the Empire. In carrying out these policies both countries lend material aid as well as encouragement to prospective migrants of British stock, and special inducements are offered to approved farm laborers, domestics, and miners, the classes most needed in the Dominion.

Immigration from the British Isles into New Zealand during the year ended Mar. 31, 1927, reached a total of 14,943, a figure not equaled in any single year since 1880. Of arrivals, 8457 were males and 6486 females.

Since enactment of the Empire Settlement Act in 1922, New Zealand has received as contributions toward passage money, grants totaling £828,810 and loans amounting to £11,215 from the Imperial government. The number of assisted immigrants showed an increase of 48 per cent over the previous year. Of the total number of immigrants, 37 per cent were men, 30 per cent women, and 33 per cent children. Farmers, farm laborers, and miners accounted for 14 per cent of the men's total, and, as they went direct to the farms and the mines, only 23 per cent of the total number of immigrants came into competition for other occupations in the labor market. These "nominated" immigrants found positions awaiting them on arrival in practically every case.

The estimated population of the chief cities of New Zealand on Apr. 1, 1927, was as follows: Auckland, 202,400; Wellington, 126,750; Christchurch, 122,000; Dunedin, 83,250.

Education. Education is compulsory between the ages of seven and 14. At the end of 1926 there were 2601 public primary schools, 6883 teachers (including 700 probationers) 216,807 scholars on the rolls, and an average attendance of 194,097. The native schools numbered 130, with 282 teachers and 6591 pupils; the private primary schools numbered 301, with 26,778 pupils. For secondary education there were 41 incorporated or endowed schools with 568 teachers and 13,651 students. The University of New Zealand was formerly solely an examining body, but by act of 1926 it now actually consists of the four university colleges: Otago University, Dunedin, Canterbury University College, Christchurch; Auckland University College, and Victoria University College, Wellington. The total number of students in 1926 was 4653.

Production. About two-thirds of the surface of New Zealand is suitable for agriculture and grazing. In 1926 the acreage under cultivation was 18,518,123 acres and the number of persons engaged in agricultural, pastoral, and dairying pursuits was 137,451. Revenue from the Crown lands of New Zealand reached £147,154 in 1926 and was devoted, as in previous years, to the cost of education, the old age pension fund, expenses of administration and collection, and other items. In 1927 8,976,000 acres were administered—6,731,289 by lease and the remainder through the Forest Service.

The chief crops with their acreage, production, and yield per acre in 1926 were as follows: Wheat, 151,673 acres, 4,617,000 bushels, 30.44 bushels per acre; oats, 102,485 acres, 4,116,000 bushels, 40.16 bushels per acre; barley, 25,969 acres, 935,000 bushels, 36.01 bushels per acre. The livestock in the same year numbered: Horses, 314,867; cattle, 3,452,486; sheep, 24,904,993; and pigs, 472,534. Wool exported or used for home consumption in 1925 amounted to 200,536,472 pounds. The chief minerals are coal, gold, and silver. The quantity mined and the value in 1925 was as follows: Gold, 114,696 ounces (£472,364); silver, 495,268 ounces (£60,773); coal exported, 138,083 tons (£235,047); coal consumed locally, 1,976,912 tons (£1,976,912). Industrial statistics for 1925 were as follows: Number of factories, excluding mines and quarries, 4547; hands employed, 80,327; value of land, buildings, etc., £49,978,843; estimated produce, £84,101,313.

The six leading industrial activities, arranged in order of the number of persons engaged in them, were as follows:

LEADING INDUSTRIES IN NEW ZEALAND

Industry	*Employees*	*Salaries and wages*	*Added value*
Building	9,942	£2,429,831	£5,459,257
Sawmilling	9,643	2,319,670	4,175,042
Printing	7,223	1,621,631	1,296,411
Clothing	6,844	844,383	1,168,595
Meat freezing	5,798	1,466,867	2,720,144
Butter and cheese .	4,140	888,882	3,343,980

Commerce. The trade and commerce of New Zealand in 1926 did not show such favorable results as in the previous year, but there was no actual financial depression and the country enjoyed a moderate degree of prosperity. Money was available at reasonable interest rates for conservative business ventures and credit abroad was not lacking. The most serious phase of the general trade was the reduced price obtainable for wool and most primary products. At the close of the year conditions were much improved and the first wool sales of 1927 showed considerable advance in price and demand.

The oversea trade of New Zealand in 1926 was valued at £95,165,138 against £107,718,679 for the previous year, or a decrease of £12,553,541. Exports from the Dominion declined £9,986,697—from £55,262,272 in 1925 to £45,275,575 in 1926. The value of imports into New Zealand fell to £49,889,563 in 1926 from £52,456,407 in the previous year, a decrease of £2,566,844. The falling off in the shipments of primary products was largely incident to the lower price of wool—a decline in export values from £17,738,738 in 1925 to £11,830,188 in 1926, although, in 1926, 34,948 more bales were shipped than in 1925. Declines also occurred in exports of butter, frozen meat, skins and hides. A slight increase, on the other hand, was recorded for shipments of cheese, worth £5,939,359 in 1926 compared with £5,800,808 in 1925, and of sausage casings valued for the two years at £780,811 and £675,848, respectively.

Of the total exports from New Zealand, British countries bought to the value of £39,526,924, or 87.31 per cent, which is 1.17 per cent above 1925. Imports from the United Kingdom were valued at £34,065,656, or 68.28 per cent of the total against 72.75 per cent in 1925. Exports to the United States increased slightly to 8.43 per cent of the total and Australia's share from 4.52 to 6.75 per cent. A feature of New Zealand's import business was a steady and increasing demand for merchandise from the United States. In 1925 this trade reached a value of £8,885,265 and in 1926, £10,004,264, or an increase of £1,118,999.

Finance. The revenue estimates for 1926–27 were £24,266,200 and the expenditure of £23,986,616. During the year ended Mar. 31, 1927, taxation in New Zealand amounted to £12 5*s.* 6*d.* per person, as compared with £12 7*s.* 11*d.* for the preceding year and £12 3*s.* 3*d.* for the year ended Mar. 31, 1925. The total amount collected during the 1926–27 period reached £17,437,827, the bulk of which was obtained from customs duties and income taxes. Fees collected under the motor vehicles act amounted to £395,797 for 1926–27, as compared with £86,681 for the preceding year.

The public debt of New Zealand as of Dec. 31, 1926, amounted to £239,000,000, of which 51.38 per cent is directly interest bearing. The five main divisions of the debt are as follows:

	Per cent
Productive works	26.50
Land settlement and forest	10 81
Investments	14.07
Indirectly productive purposes	8.64
Financially unproductive	39.98

Before the War, the unproductive debt of the country was only 20 per cent of the total, but during the six years ended March, 1920, the war debt of £80,000,000 raised the percentage of the unproductive debt. The total war debt increased to over £82,000,000, but has since been reduced nearly £7,000,000.

COMMUNICATIONS. At the end of 1925 the registered vessels of New Zealand numbered 579 of 123,693 net tons. In the same year 656 vessels of 2,122,741 tons entered the ports of the Dominion and 663 of 2,139,192 tons cleared. For the first 10 months of 1926, according to the New Zealand *Year Book* for 1927, 567 vessels of 1,868,844 tons entered and 553 vessels of 1,871,103 tons cleared. The latest railroad statistics, those for 1926, showed that the government lines earned £1,992,334, which was reduced after interest had been charged off and also appropriations for betterments, to an unappropriated surplus of £21,023. This latter figure compares with a deficit of £87,736 in 1925. The New Zealand State railways reported 3138 miles open for traffic in 1926 as against 3085 in 1925. The private lines total about 116 miles.

GOVERNMENT. Executive power is vested in a governor-general and legislative power in the governor-general and a general assembly of two houses, namely the Legislative Council of 42 members (September, 1926) appointed for seven years but to be elected after the expiration of the terms of members sitting in 1923, and the House of Representatives, consisting of 80 members, elected by the people for three years. The governor-general in 1927 was Gen. Sir Charles Fergusson. The cabinet was constituted as follows: Prime Minister, Minister of Railways, Native Affairs, etc., J. G. Coates; Finance, W. D. Stewart; Postmaster-General, Telegraphs, External Affairs, Immigration, etc., W. Nosworthy; Labor, Mines, and Marine, G. J. Anderson; Lands, Industries and Commerce, A. D. McLeod; Minister for Cook Islands, Sir M. Pomare; Internal Affairs, R. F. Bollard; Agriculture and State Forests, O. J. Hawken; Attorney-General, Justice, and Defense, F. J. Rolleston; Health, J. A. Young; Education, R. A. Wright; Public Works, K. S. Williams.

HISTORY. New Zealand enjoyed a very quiet year, no outstanding event of importance being reported in the press. The session of parliament which opened on June 23 was greatly exercised over the question of the tariff. The government, while it had a working majority, was considerably hampered by a strong minority. The tariff question was placed in the hands of a commission of experts with power to recommend changes in the existing schedules. Other vexatious problems which were discussed pro and con were the question of religious instruction in the schools, and prohibition. New Zealand schools had never had religious instruction of any description, but there had lately been a widespread demand for the daily reading of the Bible. This demand had been chiefly voiced by Protestant organizations and had been attacked by Roman Catholics and teachers' organizations. The last Parliament failed to pass such a measure, but the proponents of the bill hoped to pass it in the 1927 Parliament; however, such action did not occur. The liquor trade had been regulated by license and the prohibitionists had been active in their demands for complete prohibition, while another group demanded government control of the sale of liquor. The government determined to keep the license system.

See LEAGUE OF NATIONS.

NICARAGUA, nē′kȧ-rä′gwȧ. The largest of the Central American republics. It is bounded on the north by Honduras, on the east by the Caribbean Sea, on the south by Costa Rica, and on the west by the Pacific Ocean. Capital, Managua.

AREA AND POPULATION. The area is estimated at about 49,200 square miles, of which 4500 square miles is lake area. Population, according to the census of 1920, 638,118, or about 14 inhabitants to the square mile. The coast line is 300 miles on the Atlantic and 200 miles on the Pacific. The population consists almost entirely of Indians and negroes and mixtures of the two with white blood. The proportion of pure white blood is about 10 per cent. About 75 per cent of the population lives in the western half of the country. The eastern and western sections differ greatly and there is very little communication between them, the journey by trail and river being difficult. Travelers going from one coast to the other usually go by way of Costa Rica or through the Panama Canal.

The population of the various cities in Nicaragua in 1926 as shown by a census made by their respective departments of sanitation was reported to be as follows: Managua, the capital, 32,536; Leon, 23,565; Granada, 18,066; Masaya, 13,763; Chinandega, 10,307; Rivas, 4081; Matagalpa, 3142; and Corinto, 2307.

EDUCATION. According to the latest available statistics, there were 460 state elementary schools, with 1105 teachers and 30,210 pupils; three secondary schools, with 37 teachers and 259 pupils; five professional schools with 219 students; three normal schools with 35 teachers and 222 students; 76 private schools (elementary) with 5557 students. For higher education there are the Central University at Leon; and the Eastern and Southern University at Granada. From 50 to 75 per cent of the people are classed as illiterate, chiefly because much of the money originally appropriated for education is spent for war purposes in connection with the many revolutions which have convulsed the country.

PRODUCTION, ETC. The chief sources of national wealth are agriculture, timber, and mining. The development of agriculture has been hampered somewhat by the lack of labor. The banana is the chief product of the eastern part of the country. The foodstuffs for the inhabitants have to be imported, chiefly from the United States. In the western part the principal crops are coffee, sugar cane, cacao, corn, and beans, the average coffee crop being estimated at 22,500,000 pounds. The western part of the country raises most of its own foodstuffs and occasionally has a surplus for export. There are valuable forest woods, especially mahogany and cedar, which enter into the exports; also dye woods, gum, and medicinal plants. The mineral resources include gold, silver, copper, and precious stones.

Notwithstanding political unrest, 1926 was a year of prosperity and internal development for Nicaragua. There was an unusually good coffee crop. Government finances were favorable at the beginning of 1926, largely due to heavy collections during the previous year, but, despite the large return throughout 1926, excessive expenditures for military purposes added to the indebtedness of the government and created a serious financial situation at the close of the year. For the east coast the year was one of exceptional difficulties. The basic industries, banana and mahogany, were seriously hampered by revolutionary activities and suffered heavy losses, in consequence of the attendant disorders. Mercantile interests likewise suffered, all commercial intercourse for months having been at a standstill.

Commerce. In 1926 the foreign trade for Nicaragua was greater than in any year since 1920. The total foreign trade for the year amounted to $23,283,238, of which $10,254,512 represented imports and $13,028,726 exports. In 1925 the imports were $10,376,291 and the exports $12,359,585, or a total of $22,735,876.

STATEMENT SHOWING VALUE OF PRINCIPAL ARTICLES EXPORTED DURING THE YEARS 1925 AND 1926

Articles	*1925*	*1926*
Bananas	$1,736,053	$1,225,661
Beans	7,270	7,845
Cacao	27,112	45,791
Coconuts	43,858	21,627
Coffee	5,627,133	8,100,397
Corn	54,770	56,013
Cotton	69,516	7,700
Gold	586,268	686,265
Hides and skins	219,452	164,512
Lard	27,044	2,085
Rubber	92,203	103,507
Silver	78,481	33,782
Sugar	1,559,165	876,228
Wood:		
Cabinet	1,853,035	1,342,238
Dyewoods	57,758	65,365
All others	320,522	289,710
Total	12,359,585	13,028,726

IMPORTS, BY PRINCIPAL ARTICLES, FOR THE YEARS 1925 AND 1926

Articles	*1925*	*1926*
Cement	$24,872	$33,666
Chemicals, drugs, and medicines	459,980	371,595
Cotton goods	2,669,589	2,102,998
Fibres, vegetable, manufactures of	293,332	259,688
Food products:		
Coffee	13,864	19,214
Fish and products	74,659	67,433
Flour, wheat	588,182	487,110
Fruits and products	74,850	70,666
Indian corn	12,987	10,637
Meat and dairy products	137,237	165,554
Rice	92,384	130,293
Sugar	30,012	28,265
Vegetables and products	174,182	146,514
All other	319,900	315,065
Gasoline	169,588	169,642
Hides and skins and manufactures	365,578	351,384
Iron and steel manufactures	682,245	843,664
Liquors, wines, and other beverages	280,210	290,991
Paper and manufactures of	155,857	155,790
Petroleum	146,921	140,060
Silk goods	349,032	342,790
Woolen goods	164,980	124,014
All other imports	3,145,955	3,627,479
Total	10,376,291	10,254,512

Finance. The internal debt on Feb. 1, 1926, amounted to $2,867,000 and the external debt on the same date £772,260. The latest statistics for budgetary finance (1924) showed total receipts amounting to $2,211,706 as against $2,097,286 in 1923. Customs collections were $1,261,349 and $1,005,000 and internal revenue collections $926,323 and $999,310 respectively. The remainder was made up from consular fees and miscellaneous sources. Budget expenditures amounted to $1,580,000, the same as for 1923.

Communications. In 1925, 1792 vessels of 786,689 tons entered the ports of Nicaragua and 1782 vessels of 786,545 tons cleared. The Pacific Railroad of Nicaragua is the only line in the republic, having a total length of 146 miles.

Government. Executive power is vested in a president who acts through a responsible ministry, comprising departments of foreign affairs and public instruction, finance, interior, justice, war and marine, and public works; legislative power is in a bicameral legislature consisting of a chamber of 40 deputies elected for four years by universal suffrage, and a senate of 13 members elected for six years. President in 1927, Alfonso Diaz. On Feb. 25, 1927, Congress approved, and on March 2 the president published, the election of General Bartolomé Víquez and Deputy Francisco José Argüello as First and Second Designates for the Presidency of the Republic.

History

The United States government continued to hold complete sway over the Republic of Nicaragua during the entire year 1927. As noted in the previous Year Book, that tiny country was war torn and the plaything of the Conservative and Liberal forces. The United States intervened on the side of the Conservative leader, Diaz, against his Liberal opponent, Sacasa. On January 10, President Coolidge sent a message to Congress in which he defended his policy. The chief importance of the document was an attack on the Government of Mexico for attempting to establish a government in Nicaragua which was hostile to the United States and a menace to the Panama Canal. In his message he stated: "I have the most conclusive evidence that arms and munitions in large quantities have been on several occasions since August, 1926, shipped to the revolutionists in Nicaragua. Boats carrying these munitions have been fitted out in Mexican ports and some of the munitions bear evidence of having belonged to the Mexican government. It also appears that the ships were fitted out with the full knowledge of, and, in some cases, with the encouragement of Mexican officials, and were, in one instance at least, commanded by a Mexican naval reserve officer. The United States cannot, therefore, fail to view with deep concern any serious threat to stability and constitutional government in Nicaragua tending toward anarchy and jeopardizing American interests, especially if such state of affairs is contributed to or brought about by outside influence or by any foreign power." The President's message, while not causing much of a stir at Washington, was, nevertheless, a subject of bitter attack in the opposition press throughout the United States and brought forth many denunciatory speeches in both houses of Congress.

In the meantime sporadic fighting continued in Nicaragua between Liberal and Conservative forces. The United States government as a direct aid to Diaz, had lifted the embargo on arms as far as he was concerned and sent more warships and marines to the country. On January 10, three more neutral zones were established in the country. By the end of February eight cities had been "neutralized" as well as the railway from Corinto to Managua. The only two cities of any importance that had not been declared neutral zones were Matagalpa and Granada. During February the situation was further complicated by the appearance of a British cruiser in Nicaraguan waters. The British Ambassador at Washington gravely stated that the cruiser was merely a base of refuge for British nationals in Nicaragua and did not intend to land armed forces. All kinds of rumors were abroad concerning the alleged violation of the Monroe Doctrine and in some quarters it was even hinted that Great Britain was planning to intervene in behalf of the Liberals under Sacasa. However, the matter blew over early in March, when the United States landed 1600 more American marines at Corinto and the British Chargé d'Affaires stated that he thought British interests would be adequately protected by American men and ships. The British ship was thereupon recalled from Nicaraguan waters.

Although several attempts were made in the first few months of the year to effect some reconciliation between the two warring parties in the country, it was not until early in April that a real effort was made to bring about harmony. This effort consisted of the sending of Henry L. Stimson, former Secretary of War, to Nicaragua as the personal emissary of President Coolidge to determine whether he could find a common ground for the settlement of the difficulties. His instructions called for him to consult with American Minister Eberhardt and Admiral Latimer, in charge of American forces, and to convey to them "certain views of the Administration which cannot conveniently be taken up by correspondence and get information from them as to the entire situation in that country for the use of the government which they cannot very well give through correspondence."

After conferences with President Diaz and Dr. Sacasa, Mr. Stimson held a meeting with General Moncada early in May. Moncada stated that inasmuch as the United States government was prepared to take the field against his army he was perforce ready to lay down his arms. Washington officially declared that no threat of force was used against the Liberals, whose position had been weakened just prior to the conference by serious reverses at the hands of the Conservatives.

These setbacks and the attitude taken toward the Liberals accomplished the desired purpose and on May 6 the State Department at Washington announced a formula for peace in Nicaragua. The terms were as follows: (1) Complete disarmament on both sides; (2) an immediate general peace to permit planting for the new crop, in June; (3) a general amnesty to all persons in rebellion or exile; (4) the return of all occupied or confiscated property to its owners; (5) participation in the Diaz cabinet by representatives of the Liberals; (6) organization of a Nicaraguan constabulary on a non-partisan basis, commanded by American officers; (7) American supervision of the 1928 election; (8) the continuance temporarily in the country of a sufficient force of American marines to guarantee order pending the organization of the constabulary.

The Liberal forces almost immediately began to turn their arms over to the United States forces and the Conservatives did likewise. About the middle of May, Mr. Stimson reported to the Department of State as follows:

> The civil war in Nicaragua is now definitely ended. Nearly all the Government troops and practically the entire insurgent army of Moncada have been disbanded and substantially all of their arms have been turned over to our custody. We have received thus far 6200 rifles, 272 machine guns, and 5,000,000 rounds of ammunition. There has been very little disorder and not a single American shot has been fired against the organized forces of either side. Among the Nicaraguans themselves bloodshed has substantially ceased since our action of May 4. I believe that our action meets general approval among the thinking men and women of Nicaragua irrespective of party. Almost the only malcontents are the extremely small group of personal associates of Sacasa, who, through their well-organized press bureaus in Mexico, Costa Rica, Guatemala, and the United States, have sought to convey an entirely false impression of the situation. The views of these men who have done no fighting for their cause carry little weight in Nicaragua. The fighting men of the insurgent army have taken a truer and more generous view of our action and are preparing to coöperate in the future work. In this work of conciliation and reconstruction the Diaz Government has taken an encouraging lead. Amnesty was declared even before the troops were disarmed and pledges have been given to restore the courts and congress to the status existing before the Chamorro coup d'état. There has also been promised the appointment of Liberal local officials in the Liberal provinces. I am bringing with me the formal request of the Government for American supervision at the 1928 election.

Needless to say, the Stimson peace proposals were not hailed everywhere as the panacea for the ills of the country. Despite his optimistic report concerning disarmament there were attacks on American marines which resulted in the deaths of several. Of course these attacks were reported as the work of unorganized guerrillas, but there was a feeling that they were really inspired by the Sacasa government. Sacasa, himself, said he could not understand why the United States persisted in recognizing and upholding the Diaz regime, even at the expense of American lives. Senator La Follette said, "The admission by our State Department that Mr. Stimson, speaking for President Coolidge, threatened open warfare on the Liberals is an amazing revelation that the President, in carrying forward his policy of ruthless imperialism in Central America, is ready to violate the constitution, which gives the war-making power solely to Congress. This course has already gone far in destroying the good will of all Latin America toward the United States. Our mutual friends have become our potential enemies." Dr. Sacasa stated that the Liberals would remain aloof from the Diaz government "because dignity demands it." He himself, left Nicaragua and took refuge in Costa Rica, thence proceeding to Guatemala in June where he followed his profession of medicine.

In the meantime, according to reports of Admiral Latimer, the disarming of Nicaraguan forces proceeded rapidly and the Marine forces were gradually reduced. In compliance with the Stimson report, President Coolidge appointed Gen. F. R. McCoy, U. S. A., the chairman of the commission to supervise the elections of 1928.

One of the Liberal Generals who refused to accept the Stimson formula was Sandino, who operated about 100 miles north of Managua. In

June he seized American mines and refused to heed the demands of Major Hatfield of the United States Marines to lay down his arms. The result was a battle in which the Americans suffered some casualties and the rebels, according to press accounts, suffered severe losses. Skirmishes were of common occurrence in the next few days and the events gave rise to criticism in American quarters of the Nicaraguan policy. Secretary of State Kellogg issued a statement in which he declared that Sandino and his band were nothing more than common outlaws who did not have the support of either party in Nicaragua. Sandino's actions were also condemned by Moncada, the former leader of the Liberal forces in the field. Throughout the remainder of the year the Sandino forces were engaged in combat with Marine forces and suffered severe losses, while the Marine casualties were comparatively light. The resistance of Sandino, however, was sufficiently great to cause the dispatch of 1000 additional Marines to the country at the very end of the year.

In December the American State Department announced that Dr. W. W. Cumberland, formerly financial adviser to the Government of Haiti, would make a trip to Nicaragua "to make a financial and economic survey of Nicaragua and to investigate the country's resources and requirements, in order that the Nicaraguan government and the Department of State may have the benefit of his recommendations regarding the advisability of a loan to provide an additional revenue for the payment of claims arising out of the recent revolution, for establishing and maintaining an efficient national guard to preserve order in the country, for the expenses of holding Presidential elections next year, for the construction of the long contemplated and apparently much needed railway between the capital and the Atlantic coast and for other public works." The American government was to pay the expenses of the survey.

NICHOLS, Lieut.-Col. Henry J. American military surgeon, died at Ancon, Panama, on September 5. He was born on May 21, 1877, at Milwaukee, Wis., and graduated at Yale in 1899 and in medicine at the University of Pennsylvania in 1904. Dr. Nichols entered the U. S. Army Medical School in 1905. He was made a captain in 1909, obtained his majority in 1916, and in 1918 became lieutenant-colonel. During the cholera epidemic in the Philippine Islands in 1908 he was in charge of a hospital. He was active in research and experimental work and he won praise and promotion for his services during the World War. Colonel Nichols was editor of *The American Journal of Tropical Medicine* in 1926 before he was transferred to the Canal Zone.

NICHOLSON, Joseph Shield. British economist, died at Edinburgh on May 12. He was born at Wrawby, Lincolnshire, Nov. 9, 1850, and educated at Edinburgh, Cambridge, and Heidelberg universities. He became professor of political economy at Edinburgh in 1880. His writings represented a compromise between the methods of the historical school of German economics and those of the British deductive school. He closely followed the great work of John Stuart Mill in his selection of material but in Professor Nicholson's work *Principles of Political Economy* (3 vols. 1893–1901), statistical and historical discussion is employed instead of the abstract reasoning from simple assumption which characterizes Mill's works. Among his other important writings are: *Strikes and Social Problems* (1896); *Elements of Political Economy* (1903); *Rents, Wages, and Profits in Agricultural and Rural Depopulation* (1906); *Life and Genius of Ariosto* (1914); *The Neutrality of the United States* (1915); *War Finance* (1918); *Inflation* (1919); *Revival of Marxism* (1920).

NIGERIA, Colony and Protectorate of. A West African territory, belonging to Great Britain, divided into two groups of provinces, known respectively as the Northern and Southern Provinces. The area is approximately 335,700 square miles and the population, according to the census of 1921, 18,070,608, of whom 9,998,314 were in the Northern Provinces (area, 258,000 square miles). There were 3900 Europeans in 1921. For administrative purposes the mandated territory of Kamerun is attached to Nigeria. The seat of government is at Lagos. In 1925 in the Northern Provinces there were 53 government schools and 124 unassisted private schools, the total average attendance in the government schools being about 2125. It was estimated that there were more than 28,000 Mohammedan schools, with about 316,000 pupils. In the Southern Provinces in the same year there were 49 government schools with an average attendance of 7751; 205 assisted schools with an enrollment of 37,077; 3200 unassisted schools, with an enrollment of 133,900. The chief products are palm kernels, palm oil, rubber, peanuts, animal products, shea-butter, ivory, cacao, kola nuts, coffee, drugs, and tobacco. The forests supply mahogany, which is exported. Iron, lead, and tin are worked by the natives, and gold, silver, lignite, monazite, galena, and manganese ore are found. Nigeria is the sixth largest producer of tin in the world, the total output in 1926 being 8632 tons of tin concentrates. The imports in 1925 were valued at £16,278,349 and the exports £17,370,161. The chief article of import was manufactured goods and the chief articles of export, palm oil and palm kernels. The total shipping which entered and cleared from the ports of Nigeria was 2,655,001, of which 1,616,079 was British. The revenue in 1925–26 was £8,268,928 and the expenditure £6,583,167; public debt, £19,309,210. Railways open for traffic in 1926 totaled 1265 miles.

It was expected that the linking in March, 1927, of the eastern and western divisions of the Nigerian Railway, by the construction of a line from Makurdi to Kaduna, would greatly benefit the northern Nigerian tin industry. Heretofore the tin fields have had but a single outlet to the sea, by means of the Bauchi light railway, which connected in turn with the Lagos-Kano line at Zaria. The new line not only provided a second tide-water outlet at Port Harcourt, where good harbor accommodations exist, but, what was more important, placed the fields in direct rail connection with the government's Udi coal fields at Anugu.

The administration is in the hands of a governor and an executive and legislative council. Governor, Sir G. Thompson.

NIJNI NOVGOROD FAIR. See Expositions.

NITRALLOY. See Chemistry, Industrial, under *Steel*.

NITRATE OF SODA PRODUCTION. See Chile.

NITRIDING. See Chemistry, Industrial.

NITROGEN. See Chemistry, Industrial; Fertilizers.

NOBEL PRIZES. On December 10 the annual distribution of Nobel Prizes was made at Stockholm in the presence of the King, Gustave V, the Crown Prince, and other notable personages. The Peace Prize for 1927 was presented to Ferdinand Buisson of Paris and Prof. Ludwig Quidde of Germany. M. Buisson, who was born Dec. 20, 1841, at Paris, had been engaged ceaselessly in working for peace throughout the world since 1879. He had been connected with the Education Department at Paris and was a professor at the Sorbonne (1896–1902) and also a deputy in Parliament. He was honorary president of the League of the Rights of Man and had written thousands of articles in furtherance of his peace ideas. Professor Quidde of the University of Munich was born in 1858 at Bremen and for many years held a chair of history in Munich. He published *Caligula, A Study in Caesarean Insanity* in which, it was asserted, in thinly veiled form he was endeavoring to show the dangers to be anticipated from the occupation of the Hohenzollern throne by Kaiser Wilhelm. He was ostracized by many of his friends for this work, and from that time on devoted himself assiduously to the interests of international peace and to opposing militarism. He was a Democratic member of the Reichstag and was accused of treason in 1924 but was released after an investigation.

The Nobel prize in Physics for 1927 was divided between Prof. Arthur Compton, Professor of Physics at the University of Chicago and Prof. Charles T. R. Wilson of Cambridge University. Professor Compton was well known for researches connected with X-rays and radio activity and was the author of the book *X-ray and Electrons,* published in 1926. Professor Wilson was known for his work in the observation of electrified particles. (See Physics.) The 1927 award of the Nobel prize in Medicine was made to Dr. Julius Wagner-Juaregg, a psychiatrist of Vienna, Austria, for the discovery of the malarial treatment of paralysis. The 1926 Prize in Medicine was given to Prof. Johannes Fibiger of Copenhagen. The Nobel Prize for Literature for 1926 was awarded to Grazia Deledda, the Italian authoress. The recipient, who was born at Nuoro in Sardinia in 1874, began her literary career as a journalist but soon devoted herself to the writing of novels in many of which the scenes are laid in Sardinia where she depicts life with vividness. Her style is marked by its originality and her most celebrated works are: *Nell' azzuro; Elias Portolu; Cenere; Canne al Ventro; Il Nostro Padrone; Colombi e Sparvieri; Marianna;* and *Sirea.*

No awards in either Chemistry or Literature were made in 1927.

NORTH CAROLINA. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,559,123. The estimated population on July 1, 1927, was 2,897,000. The capital is Raleigh.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	1,727,000	857,000 [a]	$83,558,000
	1926	1,985,000	1,213,000 [a]	69,748,000
Tobacco	1927	650,000	468,000,000 [b]	120,744,000
	1926	565,000	386,460,000 [b]	102,025,000
Corn	1927	2,352,000	53,626,000	48,800,000
	1926	2,376,000	52,272,000	45,999,000
Hay	1927	952,000	902,000 [c]	15,974,000
	1926	817,000	733,000 [c]	14,452,000
Peanuts	1927	211,000	210,367,000 [b]	9,467,000
	1926	180,000	185,400,000 [b]	7,787,000
Wheat, winter	1927	483,000	5,168,000	7,494,000
	1926	447,000	6,303,000	9,013,000
Potatoes	1927	72,000	7,368,000	11,052,000
	1926	67,000	6,325,000	10,120,000
Sweet potatoes	1927	89,000	10,146,000	8,117,000
	1926	84,000	7,560,000	7,560,000
Oats	1927	273,000	5,733,000	4,128,000
	1926	310,000	6,820,000	4,706,000
Rye	1927	94,000	1,128,000	1,523,000
	1926	104,000	1,352,000	1,690,000
Soy beans	1927	161,000	1,598,000	2,397,000
	1926	174,000	1,378,000	2,412,000

[a] bales, [b] pounds, [c] tons.

Mineral Production. Clay products, which led in importance in the mineral industry of the State, attained for 1925 a total value of $3,868,962; in 1924, $4,000,431. Stone production was also important, being 1,565,690 short tons for 1925 and 1924, 1,340,840; with a value of $3,478,855 for 1925 and of $3,133,510 for 1924. Sand and gravel, feldspar, clay, coal and mica were chief among the minor products. The total mineral production of the State in 1925 was $9,504,063; in 1924, $9,261,467.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $16,292,822; their rate per capita was $5.75. They included $1,923,579 apportioned for education. Totals not included in the above, of $16,635 expended in public service enterprises, $5,214,374 in interest and $24,280,205 in permanent improvement outlays, brought the aggregate of State expenditure to $45,804,036. Of this, $23,990,981 was for highways; $2,940,310 being for maintenance and $21,050,671 for construction.

Revenue receipts were $36,474,774; or per capita, $12.87. Of their total, property and special taxes yielded 21.8 per cent, attaining the per capita rate of $2.81. Property tax receipts were limited to payments of arrears from former years. Earnings of departments and compensation paid the State for officials' services supplied 11.1 per cent of revenue; 43.1 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $119,162,556, or $42.03 per capita. Property not being subject to ad valorem taxation, there was no assessed valuation reported in 1926.

Transportation. The number of miles of railroad line in the State Jan. 1, 1927, was 5,307.90. No new track was built in 1927.

Education. The State equalization fund was more than doubled by act of the General Assembly, the appropriation being $3,250,000, as against a previous appropriation of $1,500,000.

Charities and Corrections. The State Board of Charities and Public Welfare, as functioning in 1927, was composed of seven members, one by law a woman, elected by the General Assembly on recommendation of the Governor for six-year terms and serving without salary. It supervised State charitable and penal institutions, inspected those of the counties, provided for the disposal of dependent, delinquent and neglected children and licensed certain of the child caring private agencies. In 1917 there was created a statewide system of public welfare with the county as the basic unit. The Commissioner of Public Welfare, the executive officer of the board, works through six divisions: child welfare, mental health and hygiene, institutions, county organization, education and publicity and Negro work. The General Assembly of 1927 increased the appropriation for mothers' aid to $50,000 a year, as the State's part; established a farm colony for women offenders; gave a small grant to the school for delinquent negro girls now being run by the State Federation of Colored Women's Clubs; provided for the uniform classification of county prisoners; and made several minor changes in the laws relating to state institutions.

Institutions under the supervision of the board with inmate populations were as follows: State Hospital for the Insane, Raleigh, 1641; State Hospital for the Insane, Morganton, 2148; State Hospital for the Insane (Negro), Goldsboro, 1569; Caswell Training School for the Feeble-minded, Kinston, 548; State Prison, Raleigh, 1580; Eastern Carolina Training School for Boys, Rocky Mount, 31; Jackson Training School for Boys, Concord, 450; State Home and Industrial School for Girls, Samarcand, 300; Morrison Training School for Boys (Negro), Hoffman, 100; N. C. Orthopædic Hospital, Gastonia, 100. According to statistics of the U. S. Department of Commerce, 580 prisoners were admitted to the State Prison in 1926 and its inmates on Jan. 1, 1927, numbered 1580.

Other State institutions not under supervision of the Board are: State School for the Blind and Deaf, Raleigh, 175; School for the Deaf, Morganton, 300; Sanatorium for the Treatment of Tuberculosis, Sanatorium, 350; Confederate Soldiers' Home, Raleigh, 69; Confederate Women's Home, Fayetteville, 35.

LEGISLATION. The State Legislature convened in regular biennial session January 5. A bill to authorize an issue of $30,000,000 of State bonds for road construction was introduced in both houses. There was enacted a statute to regulate county finances. It required the public sale of county bonds on tenders obtained in sealed bids, and required a county referendum to approve issue of bonds for any save necessary purposes. Limits on the terms of duration of bond issues were set at from 10 to 40 years in accordance with the durability of the property created or obtained with the proceeds. A measure was enacted to provide through issue of State bonds $2,000,000 for the purchase of the State's portion of the tract of 482,000 acres, lying partly in North Carolina and partly in Tennessee, to be acquired by those States and presented to the United States government to form the projected Great Smoky Mountains National Park. A law was passed which had for its purpose the suppression of practices attributed to the Ku Klux Klan; it rendered unlawful organizations that kept their membership secret, and forbade the wearing of masks or hoods. The State law providing a Presidential preference primary vote was repealed, with the result that the instruction of delegates to national party conventions in favor of a specified Presidential aspirant automatically became the function of the State party convention.

POLITICAL AND OTHER EVENTS. The State sold April 25, $10,000,000 of its bonds and an equal amount of notes, to finance its highway programme. The State Supreme Court early in June affirmed the validity of the county finance act of 1927, against which it had been advanced that the measure, amended in passage, had not been constitutionally thrice passed in the same form. The court at the same time declared valid the issue of school bonds by Guilford County, although these had not been ratified by popular vote, as the act required; a provision of the State constitution covering rights to minimum school requirements was held to form sufficient warrant for the issue of the Guilford County bonds.

OFFICERS. Governor, Angus Wilton McLean; Lieutenant-Governor, J. Elmer Long; Secretary of State, W. N. Everett; State Treasurer, B. R. Lacy; Auditor, Baxter Durham; Attorney-General, Dennis G. Brummitt; Superintendent of Public Instruction, A. T. Allen.

JUDICIARY. Supreme Court: Chief Justice, W. P. Stacy; Associate Justices, W. J. Adams, Heriot Clarkson, George W. Connor, W. J. Brogden.

NORTH CAROLINA, UNIVERSITY OF. A State institution for higher education at Chapel Hill, N. C.; founded in 1795. The enrollment in the autumn of 1927 was 2631 regular students, with 3350 in extension courses. There were 1457 registered for the summer session. The faculty had 215 members. The productive funds of the institution amounted to $1,455,569.26, and the annual income to $1,096,803.35. The library contained 190,000 volumes. President, Harry Woodburn Chase, Ph.D., LL.D.

NORTH CENTRAL, formerly NORTH-WESTERN, **COLLEGE.** A coeducational institution of higher education at Naperville, Ill.; founded in 1861. Due to confusion with other institutions of the same name, it was decided in 1926 to change the name of the college to North Central College. In the autumn of 1927 there was an enrollment of 576 students, of whom 302 were men, and 276 women. There were 41 members on the faculty. The productive funds of the College amounted to $680,000, and the income for the year was $131,000. The library contained 15,000 volumes. President, Edward Everett Rall, Ph.D.

NORTH DAKOTA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 646,872. On July 1, 1925, it was 641,192, according to a census taken by the State. No estimate was made in 1927. The capital is Bismarck.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927.

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, spring	1927	9,846,000	124,970,000	$129,969,000
	1926	9,653,000	77,081,000	90,185,000
Flaxseed	1927	1,242,000	10,184,000	18,737,000
	1926	1,380,000	7,590,000	14,649,000
Corn	1927	959,000	28,975,000	14,864,000
	1926	1,009,000	18,162,000	12,350,000
Hay	1927	2,400,000	3,648,000[a]	28,825,000
	926	2,590,000	2,183,000[a]	22,786,000
Oats	927	2,125,000	45,688,000	15,991,000
	926	2,024,000	34,408,000	11,855,000

Crop	*Year*	*Acreage*	*Prod bu.*	*Value*
Barley	1927	1,663,000	42,406,000	25,020,000
	1926	1,472,000	21,050,000	9,683,000
Rye	1927	1,381,000	23,063,000	18,450,000
	1926	1,222,000	9,287,000	6,780,000
Potatoes	1927	113,000	11,526,000	5,763,000
	1926	94,000	7,520,000	9,024,000

[a] tons.

Mineral Production. Coal mining, the only considerable mineral industry in the State, was moderately active in 1926. There were mined in 1926, 1,156,000 short tons of coal, as against 1,324,620 tons in 1925. The coal produced in 1925 had a total value of $2,445,000. Clay products totaled $149,744 in 1925, and in 1924, $168,855, and formed the next largest item of mineral output. The total mineral production of the State in 1925 was $2,662,029; in 1924, $2,735,477.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $8,127,563; their rate per capita was $12.68. They included $1,654,799 apportioned for education. Totals not included in the above, of $5,257,335 expended in public service enterprises, $1,454,159 in interest, and $1,807,526 in permanent improvement outlays, brought the aggregate of State expenditure to $16,646,583. Of this, $1,665,700 was for highways; $293,856 being for maintenance and $1,371,844 for construction.

Revenue receipts were $18,491,476; or per capita, $28.84. Of their total, property and special taxes yielded 27.8 per cent, attaining a rate of $8.02 per capita. Earnings of departments and compensation paid the State for officials' services furnished 7 per cent of revenue; 14 per cent was derived from the sale of licenses, chiefly on incorporated companies and on motor vehicles and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $3,852,762, or $6.01 per capita. Property subject to ad valorem taxation bore a valuation of $998,355,506. State taxes levied thereon were $4,213,060, or $6.57 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 5,274.08. No new track was constructed in 1927.

Education. The school population of the State in 1927 was reckoned at 217,936. There were enrolled in the public schools in 1926, 173,554 pupils. Of these, 149,294 were in the elementary schools and 24,568 in the high schools. Expenditures for public school education in the State formed a total of $15,333,835. The salaries of teachers averaged $105.23 a month.

Charities and Corrections. The North Dakota State Board of Administration, from the time of its creation in 1919, exerted full control of all State institutions. Those under its charge included not only the welfare institutions but the State university and no less than eight other State schools of higher learning. It likewise had physical charge of the State Capitol and of State property. The welfare institutions reported under its control and their respective populations in 1927 were: School for the Deaf, Devil's Lake, 115; School for the Blind, Bathgate, 32; Tuberculosis Sanatorium, Dunkeith, 116; Institution for the Feeble-minded, Grafton, 528; Hospital for the Insane, Jamestown, 1437; State Training School, Mandan, 180; State Penitentiary, Bismarck, 305. According to statistics of the Department of Commerce, patients in the State hospital for mental diseases on Jan. 1, 1927, numbered 1400, 236 having been admitted in 1926; the number admitted as prisoners in 1926 to the State Prison was 210.

Legislation. The Legislature convened in regular biennial session on January 4. A bill was passed to abrogate the system in virtue of which the State fund had sole possession of the field of furnishing insurance to cover workmen's compensation contingencies, and permitting insurance in this field by companies; but the Governor vetoed this measure. A bill to forbid the teaching of the theory of evolution was defeated in the Legislature. The State law prohibiting the sale of snuff was repealed. The State law relating to the debt incurring powers of the municipalities was consolidated into a single enactment, in which the debt limit for the local governmental bodies was set at 5 per cent of assessed valuations.

Political and Other Events. The State Railroad Board opened, April 7, an investigation of the railroad freight rates on all fuel products produced or used within the State. Owing to the harvesting of a larger spring wheat crop than in the previous year, and to the prevalence of moderately good farm product prices, business conditions in the State improved in the autumn and were in general notably better than in some years.

Officers. Governor, A. G. Sorlie; Lieutenant-Governor, Walter Maddock; Secretary of State, Robert Byrne; State Treasurer, C. A. Fisher; Auditor, John Steen; Attorney-General, George F. Shafer; Superintendent of Public Instruction, Bertha R. Palmer.

Judiciary. Supreme Court: Chief Justice, Luther E. Birdzell; Associate Justices: A. M. Christianson, A. G. Burr, John Burke, W. L. Nuessle.

NORTH DAKOTA, University of. A State institution of higher education at University Station, Grand Forks, N. D.; founded in 1883. The enrollment for the autumn of 1927 was 1685, of whom 1034 were men and 651 women. This number was distributed as follows: graduates, 37; liberal arts, 764; commerce, 123; education, 364; engineering, 211; law, 65; medicine, 51; and high school, 70. For the summer session of 1927 the total registration was 461, of whom 168 were men, and 293 women. The faculty numbered 128. The productive funds totaled $1,700,000 and the income for the year $816,000, exclusive of boarding department and trust funds, being derived as follows: from Federal land funds, $65,000; student fees and rent, $62,000; other local income, $68,000; state appropriation for maintenance, $500,000; State appropriation for buildings and improvements, $100,000; and State appropriation for public service, $21,300. The general university library contained 90,000 volumes. President, Thomas F. Kane, Ph.D., LL.D.

NORTHERN TERRITORY. A territory belonging to the Commonwealth of Australia, situated in the central and northern part of the island continent; transferred to the Commonwealth, Jan. 1, 1911. Area, 523,620 square miles; population, according to the census of 1921, exclusive of aborigines, 3867; estimated in 1927, 4085. The aborigines are estimated to number about 20,000. Principal town, Darwin, on the harbor of Port Darwin. While the soil is capable of a varied production of crops of tropical and semi-tropical zones, agriculture has not been developed chiefly because the climate is unsuitable for Europeans. Down to June, 1925, the total value of all minerals produced was £3,400,420. The imports in 1925–26 were £20,636; exports, £41,944; revenue, £81,812; expenditure, £339,299; debt, £2,270,097. Administrator, F. C. Urquhart.

NORTHWESTERN UNIVERSITY. A coeducational institution of higher education at Evanston and Chicago, Ill.; founded in 1851. It is composed of the college of liberal arts, the graduate school, the school of engineering, and schools of commerce, journalism, music, education, and speech, in Evanston; and the schools of law, medicine, dentistry, commerce, and journalism, in Chicago. For the autumn term of 1927 there was an enrollment of 9690, of whom 4250 were registered in the school of commerce in Chicago. For the summer session of 1927, 1963 students were enrolled. The faculty of the University numbered 742, an increase of 40 over 1926. The endowment, as of June 30, 1927, was $14,979,691.46, and the income from these funds for the fiscal year 1926–27 was $769,082.84. In the various libraries of the University there were approximately 270,000 bound volumes and 140,000 pamphlets. President, Walter Dill Scott, Ph.D., LL.D.

NORTHWEST PROVINCES. The Prairie Provinces of Canada. See CANADA.

NORTHWEST TERRITORIES. The term applied to the large tract in Canada to the east of the Yukon Territory, stretching northward to the Arctic from the Prairie Provinces and westward to the north of Hudson Bay and Hudson Strait; comprising the territories formerly known as Rupert's Land and the Northwestern Territory, excepting those portions which form the provinces of Manitoba, Saskatchewan, Alberta, and the Yukon Territory. Area, 1,322,954 square miles; population, according to the census of 1921, 7988. They are under the administration of the Northwest Mounted Police, directed by a commissioner at Ottawa, aided by a deputy commissioner, and a council of five. Commissioner, William Wallace Cory.

NORWAY. A constitutional monarchy of northwestern Europe, occupying the western and northern half of the Scandinavian peninsula and separated from Sweden by the Kjolen Mountains, with an extreme length of 1110 and an extreme width of 250 miles; formerly united with Sweden, but separated, June 7, 1905. Capital, Oslo.

AREA AND POPULATION. The area is 124,964 square miles and the population according to the census of 1920, 2,649,775, of whom 1,864,371 lived in rural districts. The capital, Oslo, had a population of 258,483 on Dec. 1, 1920. Other large cities with their populations in 1920: Bergen, 91,443; Trondhjem, 55,030; and Stavanger, 43,778. Before Jan. 1, 1925, the capital, Oslo, was called Christiania. The movement of population in 1925 was: Births, 58,254; deaths, 30,228; marriages, 16,292; emigration, 7009, of whom 6110 went to the United States.

EDUCATION. Elementary instruction is compulsory, the school age being from 6½ to 14 in towns and seven to 14 in rural districts. According to the latest available statistics there were in the country districts 5892 public elementary schools with 294,612 pupils and in towns 3466 classes with 112,753 pupils. There were also 228 secondary schools and 13 normal schools. The only university is at Oslo.

PRODUCTION, ETC. Almost three-fourths of the land of Norway is unsuitable for cultivation. Of the remainder over four-fifths is forest. According to the *Statesman's Year Book* for 1927, the acreage and produce of the principal crops for 1925 were as follows:

Crops	*Acreage* *1925*	*Produce* *(quarters)* *1925*
Wheat	22,027	59,569
Barley	138,901	596,330
Oats	240,553	1,252,243
Rye	22,131	74,414
Mixed corn	18,773	100,631
Potatoes	116,634	38,065,610[a]
Hay	1,639,177	2,428,391[b]

[a] bushels, [b] tons.

The latest livestock census showed 183,887 horses; 1,150,617 cattle; 1,528,819 sheep; 275,783 goats, and 252,959 swine. The forests and fisheries are the two chief single sources of wealth. The timber exports were valued at 73,701,957 crowns in 1925 and wood pulp and paper at 312,966,720 crowns. The fisheries were valued at approximately 132,098,000 crowns. Pyrite is the most important mineral product for both its sulphur and copper content. The production of ore in 1926 amounted to approximately 25,000,000 crowns as compared with about 32,000,000 in 1924 and 1925. The decline in value was largely attributable to the rise of exchange, although export figures showed a reduction in the output of ore as well. There were 10,190 manufacturing establishments, which employed 145,900 workers.

COMMERCE. Norway's foreign trade, by value, showed a considerable decline in 1926 as compared with 1925, both imports and exports having fallen off; the former dropping to 1,093,000,000 crowns from 1,379,000,000 crowns, and the latter to 811,000,000 crowns from 1,047,000,000 crowns. The actual trade, however, did not show a corresponding decrease, as the substantial drop in import and export values was largely accounted for by the appreciation of the crown from an average annual value of $0.1788 for 1925 to $0.2233 for 1926, and to declining prices in world markets. Norway's import surplus apparently was reduced from 332,000,000 crowns to 282,000,000 crowns in 1926, but, computed on a gold basis, there was actually a slight increase in Norway's import surplus during 1926, the rise in the value of the crown during that year having been about 24 per cent. Consequently a comparison by crown values of Norway's foreign trade during the last two years is very misleading. As compared with 1925 there was in 1926 an increase of goods imported for consumption, but imports of goods for productive purposes decreased. This change is undoubtedly attributable to the appreciation of the crown, which facilitated foreign competition and reduced domestic activity.

Many of Norway's important export items increased in volume in 1926, as compared with 1925, especially fish, canned goods, cod-liver oil, worked metals, and Norway nitrates, with the result that the total volume of exports in 1926 was about 6 per cent above the 1925 level and about 18 per cent above the 1913 level. Exports of timber, cellulose, and paper dropped appreciably, as a result of a labor conflict in the paper industry, Aug. 15, 1926, which lasted until October 5. The sharp decline in exports of cement (included in "Mineral Manufactures") from 174,018 metric tons in 1925 to 29,055 metric tons in 1926 likewise is attributable mainly to a labor conflict which caused a long stoppage of work.

NORWAY'S LEADING IMPORT ITEMS IN 1926

Commodity group		
Coal and coke	metric tons.	1,873,484
Grains and grain products	do....	509,733
Paraffin oil, petroleum, benzine	do....	181,482
Colonial products	do....	115,975
Iron (pig, bar, bolt, and sheet)	do....	95,812
Automobiles	number..	4,955
Ships (steam and motor)	registered tons	236,963

NORWAY'S LEADING EXPORTS, BY VOLUME, IN 1926

Commodity group		
Timber (round, sawn, and planed)	cubic meters	763,672
Wood pulp (chemical and mechanical)	metric tons	724,855
Paper, all kinds	do....	257,397
Mineral manufactures	do....	292,887
Iron ore	do....	128,423
Pyrites	do....	453,041
Fish	do....	284,223
Canned goods	do....	37,176
Cod-liver oil	hectoliters.	118,951
Other fish and whale oil	do....	206,811

FINANCE. The state budget for 1927–28 was voted in Parliament of July 5, 1927, and provided for a total of 398,100,000 crowns, as against the government's original proposal of 384,000,000 crowns. This represents a further reduction from the two previous fiscal years, when the approved budgets were estimated at 413,000,000 crowns in 1926–27 and 440,500,000 crowns in 1925–26. The budgets in the past two fiscal years have been characterized by retrenchment.

The 1927–28 budget included a new income item of 25,000,000 crowns provided through the abolition of prohibition. In addition to the approved total for the current fiscal year there was to be added 15,000,000 crowns to cover losses by the State through participation in the efforts to control the currency under the so-called exchange agreement. At the same session Parliament voted a reduction of 10 per cent in the wages of State employees, effective January 1, 1928.

Norway's debt to foreign countries was reduced by about 170,000,000 crowns during 1926. This reduction, however, was only nominal, since the greater part of it represents merely the appreciation in value of the Norwegian crown. If both that part of the debt which is in foreign currency and that part which is in Norwegian crowns be calculated on a gold basis, the result shows an increase during 1926 of 95,000,000 gold crowns. The movements of the most important groups from May 1, 1919, to Jan. 1, 1927, are shown in the accompanying table in the following column.

Since the decision in August, 1927, by the Supreme Court of Norway that a commune (township) or municipality may be declared bankrupt, six communes have declared their inability to meet their financial obligations and have been placed under the supervision of the central administration. The present financial difficulties were not a sudden development, but rather the cumulative result of heavy borrowing during the difficult post-war years.

NORWAY'S DEBT ON CERTAIN SPECIFIED DATES

[*In million crowns, paper*]

Item	*May 1, 1919*	*Oct. 1, 1924*	*Jan. 1, 1926*	*Jan. 1, 1927*
Debt:				
Business debt	300	1,025	780	775
Bonds and shares	750	1,575	1,400	1,160
Real estate	....	65	60	55
Total	1,050	2,665	2,240	1,990
Credits:				
Business debt	2,000	730	580	490
Bonds and shares	410	245	230	245
Real estate	....	30	25	20
Total	2,410	1,005	835	755
Net debt (+) or (—):				
Paper currency	+1,360	—1,660	—1,405	—1,235
Gold	+1,310	— 880	—1,065	—1,160

COMMUNICATIONS. The total registered mercantile marine of Norway on Jan. 1, 1926, consisted of 3698 vessels of 1,661,904 net tons. During 1925, 9360 vessels of 6,380,524 tons entered the ports of Norway and 9343 vessels of 6,322,770 tons cleared. Norway at the close of June 1926, had 4400 kilometers of railroad, of which 3997 kilometers were State owned and 403 kilometers privately owned. The total includes 165 kilometers of electrically operated lines, of which 123 kilometers were state-owned. The operating revenues of state railways during the year amounted to 96,688,606 crowns, and operating expenses to 92,187,002 crowns; other revenues reached 3,453,948 crowns and other expenses 3,027,900 crowns. The rolling stock in operation comprised 557 locomotives, 12,711 freight cars, and 1122 passenger cars. The competition from motor bus operation has affected certain sections of the state railways so keenly that railway passenger earnings had steadily declined. The railway authorities solicited the government to operate motor buses in connection with the trains. A committee has been organized in the Norwegian Parliament to study this question and to report on the relation between railway operation and bus traffic.

Operating revenues of the privately owned railways during 1926 totaled 4,417,108 crowns, and operating expenses 3,810,867 crowns; other operating revenues amounted to 177,634 crowns and other expenses to 527,468 crowns. The rolling stock in operation at the close of the year consisted of 45 locomotives, 651 freight cars, and 65 passenger cars. The equipment was in good condition.

ARMY AND NAVY. Military service is universal and compulsory from the age of 18 to 55. The strength of the regular force in 1926 was 1160 officers and 3245 other ranks; the numbers trained in that year were approximately 20,000; and the number available on mobilization, 300,000. The military budget for 1926–27 was 31,819,500 crowns. The main vessels of the fleet numbered only four, and were of old model. In addition there were a number of destroyers, torpedo boats, minelayers, and submarines, with about 36 seaplanes and 20 other planes. The entire navy is designed for coast defense duty. The naval budget for 1926–27 was 12,040,802 crowns.

Government. Executive power is vested in the King, who acts through a cabinet or council of state, and legislative power in the parliament or Storthing of 150 members, elected by universal suffrage, without distinction of sex. King in 1927, Haakon VII (born Aug. 3, 1872; elected King, Nov. 18, 1905). The members of the cabinet, appointed Mar. 5, 1926, were: Premier and Minister for Foreign Affairs, I. Lykke; Education and Ecclesiastical Affairs, W. C. Magelsen; Justice, K. Öyen; Agriculture, O. L. Baeroe; Public Works, A. Venger; Social Affairs, P. A. Morell; Finance, F. L. Konow; Defense, I. E. Christensen; Commerce and Industry, D. Robertson.

History. Early in April the Norwegian Parliament translated into law the popular vote which was held on the prohibition question which came before the people in October, 1926. (See preceding Year Book.) The complete abolition of the prohibition law was not provided for and a certain amount of local option was granted. In towns of 4000 or less a referendum must be held on the subject every six years to determine the attitude of that town for the succeeding six years. Certain hours were provided for the sale of liquor, which was not to be sold or served to minors. The sale was prohibited on holidays and the days immediately preceding or following such days. Norway first adopted prohibition in 1917 and absolute prohibition was approved by the voters at a special referendum in 1919. The government attempted to repeal the measure in 1924 but was defeated on the issue, whereupon the referendum of 1926 was planned by the succeeding government. The resumption of the liquor traffic caused very little excitement or interest throughout the country.

In October a general election was held which resulted in sharp gains for the Labor group, which returned 59 members as compared with 34 in the former Storthing. It was generally believed that the falling off in the membership of Conservatives and Liberals was due in a large measure to the period of severe depression which the country had suffered throughout the year.

NORWEGIAN LITERATURE. See Scandinavian Literature.

NOTRE DAME, University of. A Roman Catholic institution of higher education at Notre Dame, Ind.; founded in 1842. The enrollment for the autumn term of 1927 was 2850, which represented an increase of 218 over 1926–27. The summer session enrollment was 915. The faculty numbered 163, of whom 13 were new members. The library contained approximately 200,000 volumes. President, the Rev. Matthew J. Walsh, C.S.C., Ph.D.

NOVA SCOTIA, nō′vȧ skō′shȧ. One of the Maritime Provinces of Canada. Area, 21,428 square miles; population, according to the census of 1921, 523,837. Capital, Halifax, with a population in 1921 of 58,372. Other large towns: Sydney, 22,545; Glace Bay, 17,007; Amherst, 9998; Dartmouth, 7899; New Glasgow, 8974; Sydney Mines, 8327; Truro, 7562; Yarmouth, 7093. In 1924 the movement of population was: Births, 11,801; deaths, 6583; marriages, 2999. Education is free, compulsory, and undenominational. There are four universities and 3062 schools, with 3331 teachers and 116,871 pupils. In the technical schools there were 4519 pupils. Nova Scotia is largely an agricultural and fruit-growing country. The chief product is apples, the output of which, in 1925, was about 1,147,267 barrels. The output of the chief minerals in 1925 was: Coal, 3,288,321 long tons; crude gypsum, 471,174 short tons; coke, 198,926 short tons; and small quantities of steel ingots, pig iron, limestone, and dolomite. Nearly 24,000 men are employed in the fisheries, which, next to British Columbia, are the most extensive in Canada. The total market value of fish caught in 1925 was $10,500,000. The imports for consumption in 1925 were valued at $22,068,108 and the exports at $43,940,356. There are 1451 miles of railway.

Executive power is vested in a lieutenant-governor appointed by the Dominion government of Canada for five years, who acts through a responsible ministry or council; and legislative power in a council of 21 members appointed for life by the crown, and an assembly of 43 members. The province is represented in the Dominion senate by 10 members and in the house of commons by 16. Lieutenant-governor in 1927, James C. Tory; Premier, Provincial Secretary, and Treasurer, E. N. Rhodes; Public Works and Mines, Col. G. S. Harrington; Attorney-General, W. L. Hall; Highways, P. C. Black; Natural Resources, J. A. Walker; Ministers without Portfolios, Dr. Le Blanc and J. F. Fraser.

NOVAYA ZEMLYA, No′va Zem′bla. The Soviet government renewed its activities in the archipelago of Novaya Zemlya. On June 30, 1924, it issued a decree centralizing its interests in the arctic islands to the north of European Russia. It appointed a commissioner who, from his headquarters at Archangel, supervises the affairs of these islands, of which the most important are the north and south islands of Novaya Zemlva, Kolguev and Waigatch.

NUNGESSER, Captain Charles Eugène Jules Marie. French aviator who was lost in the Atlantic Ocean about May 8. He was born in Paris on Mar. 15, 1892. He attended the professional college at Armentières and later the School of Arts and Crafts at Lille. In 1910 he was employed as mechanic at La Brayelle Aerodrome near Douai, where, without a teacher, he succeeded in learning to fly. He then went to Argentina, South America, and led the life of a cowboy. At the outbreak of the World War he returned to France and was drafted into the Second Hussars. After a few weeks on the firing line he won the rank of brigadier and transfer to the Aviation Corps where he distinguished himself. By the time of the Armistice this French ace had accounted for 45 enemy planes and two balloons. He also had won 28 palms to his military cross, had received 17 wounds and scars, and had been honored with military distinction by all the allied countries. In the early morning of May 8, 1927, with François Coli he started from Le Bourget, Paris, to attempt a non-stop flight to New York and nothing more was heard of them or the plane. See Aëronautics.

NUTRITION, Human. See Food and Nutrition.

NUTS. See Horticulture.

NUTTING, Charles Cleveland. An American geologist, died at Iowa City, Iowa, on January 23. He was born in Jacksonville, Ill., May

25, 1858, and was educated at Blackburn University, receiving degrees in 1880 and 1882. He conducted various scientific explorations in Central America for the Smithsonian Institution (1882–84), in Florida (1885) on the Saskatchewan River (1891) and was naturalist of the *Albatross* Hawaiian expedition in 1902. In 1890 he became professor of zoology at the University of Iowa, and from 1896 was professor of zoology and curator of the American Museum of Natural History in New York.

NYASSALAND, or NYASALAND, **PROTECTORATE.** A British protectorate, formerly known as British Central Africa; situated on the southern and western shore of Lake Nyassa, extending northward to the Zambesi River. Area, 37,890 square miles; population in 1925, 1458 Europeans, 724 Asiatics, and 1,205,801 natives. The chief towns are Blantyre and Zomba, the seat of the government. Education is in the hands of foreign missionary societies, under which there were in 1925, 2663 schools, with 197 European teachers, 163,804 pupils enrolled and an average attendance of 111,509. Among the chief products are tobacco, coffee, cotton, tea, and livestock. The imports in 1925–26 were valued at £591,654; and exports at £564,926. The chief articles of export are tobacco, cotton, fibres, corn and tea; of import, manufactures of cotton, provisions, and raw materials. Great Britain supplied more than half of the imports. Revenue for 1925–26 was estimated at £322,160 and expenditures at £301,934. The administration is under a commander-in-chief, aided by an executive and legislative council, composed of nominated members. Governor and Commander-in-Chief in 1927, Sir C. C. Bowring.

OATS. The production of oats in 1927 of twenty-eight countries reporting to the International Institute of Agriculture, Rome, was estimated at 3,386,584,000 bushels, which was slightly less than the production of these countries in 1926 and only 1.6 per cent above their average yield for the five years 1921–1925. The acreage was reported as 1.3 per cent below that of the preceding year and of the five-year period. The leading countries in 1927, as estimated, produced the following yields: Canada 480,697,000 bushels, Germany 434,667,000 bushels, France 372,539,000 bushels, Poland 235,549,000 bushels, Czechoslovakia 90,742,000 bushels, and Sweden 77,416,000 bushels. In 1926 Great Britain produced about 180,000,000 bushels and the Soviet Republics 987,679,000 bushels. Argentina, the principal oat producing country of South America, reported a yield of 66,276,000 bushels for the crop year 1926–1927. The 1927 oat crop of the United States, as estimated by the Department of Agriculture, was 1,195,006,000 bushels grown on 42,227,000 acres, or at the rate of 28.3 bushels per acre. In 1926 the production was 1,246,848,000 bushels on 44,177,000 acres and the rate per acre 28.2 bushels. A survey concluded during the year pointed out that the average yield per acre of oats in the last forty years has increased 14 per cent corresponding to an increase in the average annual production of about 165,000,000 bushels. On the basis of the average farm price on December 1, 45c. per bushel, the total value of the 1927 crop was $537,276,000 and the total value of the 1926 crop on a corresponding basis of 39.8c. was $496,582,000. Oat production was reported by all states and those reporting the highest production were the following: Iowa 197,076,000 bushels, Minnesota 120,493,000 bushels, Illinois 102,204,000 bushels, and Wisconsin 93,247,000 bushels. The average yield per acre ranged from 11 bushels in Florida to 50 bushels in Washington, and the average farm price per bushel on Dec. 1, 1927, from 35c. in North Dakota to 80c. in Florida. During the year ended June 30, 1927, the United States exported 9,245,000 bushels of oats and 104,334,000 pounds of oatmeal and imported 99,000 bushels in the form of grain. The average cost of producing oats in 1926, as reported by the Department of Agriculture and based on 4045 reports, was $17.99 per acre and 53c. per bushel. A new variety of oats developed cooperatively by the Department of Agriculture and the Iowa Agricultural Experiment Station and described as having high yielding power, stiffness of straw and resistance to stem rust, was distributed to farmers in 1927 under the name of "Iogold." In the sections infested by the European corn borer farmers are advised not to continue to sow oats in disked corn stubble, as the stalks remaining in the fields afford favorable living conditions for the insect.

OBERLIN COLLEGE. A non-sectarian coeducational college at Oberlin, Ohio; founded in 1833. The registration for the autumn term of 1927 was 1669, while that of the summer session was 220. In 1926–27 the faculty had 226 members. The productive funds of the institution amounted to $14,222,796, and the income for the year to $1,290,531. The library contained 285,417 bound volumes and 195,759 unbound volumes. A gift of $100,000 from Andrew H. Noah, of Akron, announced in November, was the first contribution to a fund to be raised for the construction of residence halls for male students. President, Ernest Hatch Wilkins, Ph.D., Litt. D.

OBITUARY RECORD OF THE YEAR. See NECROLOGY.

O'BRIEN, EDWARD CHARLES. American diplomat, died June 21 at Montevideo, Uruguay. Born Apr. 20, 1860, at Fort Edward, New York, he was educated at Granville (N. Y.) Military Academy and at Georgetown University. He became disbursing officer for the House of Representatives at Washington, D. C., in 1889, and was president of the Board of Docks of the City of New York from 1895 to 1898. In 1905 he became Minister to Paraguay and Uruguay serving until 1909 when he resigned.

OCEANIA, ō′shē-ăn′ĭȧ, FRENCH ESTABLISHMENTS IN. A French colonial possession, consisting of groups of small islands, scattered throughout a wide area of the eastern Pacific. The total area of the establishments is estimated at 1520 square miles; population in January, 1924, 31,703, of whom 25,569 were natives. The principal island is Tahiti, which contains the chief town, Papeete, with a population of 4601, of whom 2126 are Frenchmen. The group of islands of which Tahiti forms a part is known as the Society Islands. The other groups are the Marquezas Islands, Tuamotu Island, Leeward Islands, the Gambier, Tubuai, and Rapa groups, and a number of outlying islands. Various tropical fruits are grown and exported. Pearls and mother-of-pearl are important products. Imports in 1925, 43,966,400 francs; exports, 50,550,511 francs. The chief imports are tissues, wheat, flour, and metal work, and the chief exports, copra, mother-of-pearl, vanilla, coconuts, and phosphates. The local budget for 1926 was expected to balance at 11,590,633 francs. The most important islands are connected by a New Zealand steamship company with San Francisco, New Zealand, and Australia. The administration is in the hands of a governor assisted by an administrative council.

O'CONNELL, DENNIS JOSEPH. Roman Catholic bishop, died at Richmond, Va., on January 1. He was born at Charleston, S. C., and was educated in his native city at St. Charles' Seminary and St. Mary's College. After being ordained priest he became secretary to Cardinal Gibbons at Baltimore. For some time he was head of the American College in Rome, Italy, and on his return was appointed rector of the Catholic University of America. He was consecrated auxiliary bishop of San Francisco in 1909, and bishop of Richmond, Va., Jan. 16, 1912.

O'DONNELL, PATRICK. Irish Roman Catholic cardinal, died at Carlingford, County Louth, on October 22. He was born on Nov. 23, 1855, at Glenties, County Donegal. His ancestors had been leaders in Donegal almost since the beginning of Irish history. He was educated at Maynooth University, and turned to the church when a very young man. He became successively priest, rector and monsignor until, at the unusually early age of 32, he was consecrated Bishop of Raphoe, Donegal. He was then the youngest bishop in the world. After the death of Cardinal Logue, in 1924, he was elevated to the archbishopric of Armagh and primacy in Ireland, and he was called to Rome and made a cardinal on Dec. 14, 1925.

OFFICERS RESERVE CORPS. See MILITARY PROGRESS.

O'HIGGINS, KEVIN CHRISTOPHER. Irish statesman, died at Blackrock, Dublin, July 10. He was born at Stradbally, June 7, 1892, and was educated at Saint Patrick's College, Carlow, and the National University of Ireland. He studied law until 1918 when he entered into the Sinn Fein movement. He was appointed Minister of Home Affairs in 1919 and began to introduce measures to bring peace to the country, insisting always that the Republicans should surrender, lay down their arms and fight their political battles with ballots. When the Irish Free State came formally into being in 1922 he continued to act as Minister of Home Affairs. He was inflexible in his insistence upon the observance of the oath of allegiance to King George, which he termed "a strict but fair interpretation of the Anglo-Irish treaty."

The maintenance of such an attitude and utterances like this made him hated and he came later to be called "the Mussolini of Ireland." But he did not fear criticism even within his own boundaries if the criticism was legal and in accordance with the Constitution. A few months before his death he demurred at a suggestion of President Cosgrave to initiate steps for a censorship of the press because, he said, in a country like Ireland one must be careful to see that the press is kept free. He ignored the visit of an emissary of the Pope to investigate conditions in Ireland. He paid no heed to a proposal for a truce from De Valera, and he opposed the release of political prisoners. In 1924 when there came a mutinous communication from officers in the Irish Free State army he led in the ousting of the entire Army Cabinet. In 1925 he was made Minister of Justice. On June 23, 1927, on the return of the government to power he took over the Ministry of Foreign Affairs in addition to the Ministry of Justice. He also acted as vice president of the Executive Council. A few days after his return from Geneva, where he had attended the League of Nations Conference, he was murdered. He was the author of *Civil War and the Events Which Led to it* (Dublin, 1922). See IRISH FREE STATE, under *History*.

OHIO. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 5,759,394. The estimated population on July 1, 1927, was 6,710,000. The capital is Columbus.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	3,376,000	109,720,000	$84,484,000
	1926	3,591,000	147,231,000	88,339,000
Hay	1927	3,144,000	5,156,000 [a]	47,433,000
	1926	2,943,000	4,039,000 [a]	56,534,000
Wheat, winter	1927	1,610,000	28,980,000	36,225,000
	1926	1,789,000	40,252,000	51,120,000
Wheat, spring	1927	5,000	88,000	110,000
	1926	6,000	132,000	166,000
Oats	1927	1,900,000	60,800,000	27,360,000
	1926	1,980,000	75,240,000	29,844,000
Potatoes	1927	116,000	12,180,000	14,616,000
	1926	107,000	10,058,000	17,099,000
Tobacco	1927	29,000	24,012,000 [b]	3,746,000
	1926	44,200	37,389,000 [b]	3,776,000
Barley	1927	155,000	4,185,000	3,013,000
	1926	116,000	3,712,000	2,301,000
Sugar beets	1927	37,000	331,000 [a]	....
	1926	35,000	340,000 [a]	2,383,000

[a] tons, [b] pounds.

MINERAL PRODUCTION. Ranking second among the States in the production of pig iron in 1925, Ohio slightly increased its pig iron output in 1926, shipments from the blast furnaces attaining 9,177,127 long tons in 1926, as against 8,857,615 tons in 1925; in value, $176,433,401 for 1926 and for 1925, $173,418,068. Coal production, on the other hand, again declined somewhat, to 27,872,488 net tons for 1926, from 28,034,112 tons for 1925. The value of the coal produced in 1926 was $54,759,000; in 1925, $54,057,000. The number of mines reckoned as of commercial size that operated in 1926 was 625; in 1925, 639; and in 1924, 750. The coking industry was less active, by-product ovens yielding in 1926, 4,547,836 short tons of coke, as compared with 7,105,129 tons in 1925; in value the yield was higher, however, being $40,344,524 in 1926, and in 1925, $34,190,691. After iron, clay products furnished the highest contribution to the yearly mineral production. They attained the value of $97,991,821 for 1925, the latest year of available statistics; for 1924, of $97,831,641. In their production Ohio led all other States. Natural gas was produced to the quantity of 43,235,000 M cubic feet in 1925, and in 1924 of 47,396,000 M cubic feet; in value $22,377,000 for 1925 and for 1924, $24,203,000. From the natural gas were extracted, during 1926, 9,900,000 gallons of gasoline, as against 8,701,000 gallons in 1925; in value, $1,275,000 for 1926 and for 1925, $990,000. Petroleum production was 7,322,000 barrels in 1926; in 1925, 7,212,000 barrels. The product was valued at $19,500,000 for 1926 and for 1925 at $18,280,000. The leading producer of lime,

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	1,131,000	1,455,000[b]	13,408,000
	1926	1,121,000	1,322,000[b]	14,328,000
Oats	1927	1,112,000	21,128,000	9,296,000
	1926	1,340,000	37,520,000	13,882,000
Potatoes	1927	45,000	2,925,000	5,265,000
	1926	43,000	2,860,000	4,862,000
Sweet potatoes	1927	23,000	2,438,000	1,950,000
	1926	24,000	2,520,000	2,520,000
Barley	1927	79,000	1,304,000	848,000
	1926	110,000	2,970,000	1,723,000
Grain sorghum	1927	1,744,000	34,880,000	17,440,000
	1926	1,817,000	34,523,000	15,535,000

[a] bales, [b] tons

MINERAL PRODUCTION. Increased yearly production of petroleum raised the State in 1926 to the second rank in regard to quantity of petroleum produced, and to that of the leading producer, in point of the value of the year's petroleum output. There were produced in 1926, 179,272,000 barrels of crude petroleum, as against 176,768,000 barrels in 1925; in value, $410,000,000 as estimated for 1926, and $348,230,000 for 1925. Natural gas production in 1925 was 249,285,000 M cubic feet; for 1924, 214,452,000 M cubic feet. In value it was $36,121,000 for 1925 and for 1924, $31,045,700. From natural gas were refined in 1926, 478,500,000 gallons of gasoline, as compared with 390,861,000 gallons in 1925; in value, $41,400,000 for 1926 and for 1925, $40,973,000. Zinc production declined slightly to 272,567 short tons for 1926, from 283,371 tons for 1925; in value it was $40,885,050 for 1926 and for 1925, $43,072,392. There were mined 69,704 short tons of lead in 1926; in 1925, 79,946 tons. The product for 1926 had a value of $11,152,640; for 1925, of $13,910,604. The quantity of coal mined in 1926 was 2,842,673 net tons; in 1925, 2,325,840 tons. Coal produced was valued at $9,042,000 for 1926 and for 1925 at $7,667,000. The output of gypsum, clay products and stone was considerable. The total of the State's mineral production in 1925, duplications eliminated, was $501,767,118, in 1924, $393,030,665.

FINANCE. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $15,598,617; their rate per capita was $6.73. They included $1,903,822 apportioned for education. Totals not included in the above, of $138,539 in interest and of $14,162,095 in permanent improvement outlays, brought the aggregate of State expenditure to $29,899,851. Of this, $13,302,681 was for highways; $2,002,111 being for maintenance and $11,300,570 for construction.

Revenue receipts were $30,929,038; or per capita, $13.34. Of their total, property and special taxes yielded 17.1 per cent, attaining a per capita rate of $2.28. Earnings of departments and compensation paid the State for officials' services furnished 7.6 per cent of revenue; 44.4 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles and from the gross production tax and the sales tax on gasoline.

Net State indebtedness on June 30, 1926, was $3,336,826, or $1.44 per capita. Property subject to ad valorem taxation bore a valuation of $1,674,826,952. State taxes levied thereon were $4,187,067, or $1.81 per capita.

TRANSPORTATION. The number of miles of railroad line in the State January 1, 1927, was 6,580.97. In 1927 were built, according to the *Railway Age*, 57.02 miles of first track.

EDUCATION. Legislation for the equalization of school standards played an important part in the educational activity of the year. The Legislature appropriated $1,500,000 a year to be distributed among school districts with the purpose of enabling them to maintain at least an eight-month school term. A rural school aid act was also passed. The number of pupils enrolled in the public schools of the State in the scholastic year 1924–1925 was 654,742, of whom 330,352 were boys and 324,390 were girls. The average daily attendance in grade schools was 386,549; in high schools, 70,223. Expenditures on the schools were, for general control, $1,461,364; for salaries and instructional service, $19,037,744; total including debt service and other expenditure, $27,409,395. The average of the salaries of 18,401 teachers was $1,001.04.

CHARITIES AND CORRECTIONS. Leading State institutions for the care and custody of individuals were: State Penitentiary, McAlester; State Reformatory, Granite; State Industrial School for Girls, Tecumseh; State Training School, Pauls Valley; State Industrial School for Colored Girls, Taft; State Training School for Negro Boys, Boley; School for the Deaf, Sulphur; Oklahoma School for the Blind, Muskogee; State Institute for the Feeble-minded, Enid; State tuberculosis sanatoria at Clinton and Talihina; Soldiers' Tubercular Sanitarium, Sulphur; Union Soldiers' Home, Oklahoma City; Oklahoma Confederate Home, Ardmore; State hospitals for the insane at Norman and Vinita; Western Hospital for the Insane, at Supply; Walker State Home; West Oklahoma School for White Children, Helena; Deaf, Blind and Orphans' Institute (colored), Taft. Inmates of State prisons and reformatories on January 1, 1927, according to statistics furnished by the U. S. Department of Commerce, numbered 2681; patients in State hospitals for mental disease, 3566.

LEGISLATION. The Legislature convened in regular biennial session January 4, and adjourned March 24. Appropriations made by the session totaled about $33,000,000. A bill to permit the piping out of the State of natural gas originating in Oklahoma was enacted but vetoed by the Governor. A supreme court commission was created, to consist of seven members, nominated by the Governor, and approved by at least seven members of the court. Further regulations of the insurance companies were enacted in a measure sent to the Governor. A two-mill State tax levy was applied. A measure was enacted requiring that municipal bonds to be issued by subdivisions of the State should be repaid gradually in installments year by year.

POLITICAL AND OTHER EVENTS. Gov. Henry S. Johnston was inaugurated in January and soon became involved in bitter political differences with members of the legislative majority. By resolution of the State Senate he was asked, February 25, to dismiss his executive secretary, Mrs. O. O. Hammond, and declined to do so. Soon after assuming office he removed certain of the members of the Insurance Board, and of the Flood Control Commission, and removed the entire Highway Commission, against whom there had been complaint. Advocates of a proposed increase in the production tax on petroleum, lead and zinc demanded in September that he call a special election for the early ratification of the desired measure. They presented a petition said to contain 50,000 signatures, but the Governor declined to call a special election, thus leaving the proposal to be voted on at the next succeeding general election. In October certain members of the Legislature petitioned the Governor to call a special session, and, on his failing to do so, a call for a session was issued over the names of four Legislature members.

The purpose of the session was to institute an impeachment of the Governor. An injunction against the members seeking to convene the Legislature was sought by the State administration, and was denied in the District Court at Oklahoma City November 28. The State Supreme Court shortly after reversed the lower court and granted an injunction against the holding of a session. Members of the Legislature, in sufficient number for a quorum of either house, nevertheless gathered at the capitol on December 6. At first they were admitted, but later on an armed force of National Guardsmen under the command of the adjutant-general prevented their access to the Legislative chambers. The members of the lower house, to the number of 52 acted as an investigating committee, meeting at the Huckins Hotel, and after several days a bill of impeachment was found. Senators, to the number of about 38, subsequently met, despite court action, in an Oklahoma City hotel, to take action on the impeachment.

The Governor obtained a District Court injunction against the Senate members to forbid their holding an impeachment trial. They passed a resolution affirming the exclusive jurisdiction of their own body as a court in impeachment matters, December 28. On the following day, however, the Senate members adopted the view of the group holding that the session was not regularly convened and the impeachment bill not legally found. In this course the Senators' vote coincided with the position of the State Supreme Court, that the statutory Section 79, a measure initiated at the polls some years before, providing for the calling of the Legislature by action of its own members, was unconstitutional.

The U. S. Supreme Court refused February 21 to review the case relating to the Red River boundary between Oklahoma and Texas. Heavy petroleum production in the State, particularly in the Seminole field, in the course of the year, caused disturbance in the oil industry. A number of the producers in Oklahoma united in an effort to check the hasty drawing of oil from this field, and on May 12 named a Tulsa operator, Ray H. Collins, to act as industrial dictator, to take steps to promote economical production. Oklahoma City by a popular vote of November 29 approved bond issues to a total of $10,329,000 for storm sewers, a conduit, public school improvements, acquisition of railroad property in the city, and other purposes.

Officers. Governor, Henry S. Johnston; Lieutenant-Governor, W. J. Holloway; Secretary of State, Graves Leeper; State Auditor, A. S. J. Shaw; Attorney-General, Ed Dabney; State Treasurer, R. A. Sneed; Superintendent of Public Instruction, John S. Vaughan; State Examiner and Inspector, John Rogers.

Judiciary. Supreme Court Justices: Charles W. Mason, E. F. Lester, James I. Phelps, John B. Harrison, Robert A. Hefner, Albert C. Hunt, Fred P. Branson, J. W. Clark, Fletcher Riley.

OKLAHOMA, University of. A coeducational State institution of higher education at Norman, Okla.; founded in 1892. The enrollment for the autumn of 1927 totaled 4898, of whom 3204 were men and 1694 were women. These were distributed as follows: graduate school, 194; arts and sciences, 2730; business, 200; education, 95; engineering, 672; fine arts, 351; law, 269; medicine, 190; nursing, 93; pharmacy, 104. For the summer session 2220 students registered, including 675 men and 1545 women. The faculty had 286 members. The productive funds of the University amounted to $3,200,000, and the income of 1926–27 to $2,027,500, from the following sources: State appropriations, for maintenance, $1,237,500, buildings and equipment as follows: Library, $250,000, medical school, $250,000, infirmary, $130,000; land, $10,000; from student fees, $150,000. The library contained 80,000 volumes. President, William Bennett Bizzell, Ph.D., LL.D.

OLD AGE PENSIONS. Laudable progress had been made in mothers' pensions and workmen's compensation, for example, but in only six States in the Union in 1927 were there to be found on statute books schemes providing for old age non-contributory systems of social insurance. And this in the face of the industrialization of the country with the greater proportion of the working population reduced to the wage-earning class. It was becoming increasingly true that for this group superannuation sets in early: 45 years is considered too old for new workers in many industrial companies. It was the estimate of the American Association for Old Age Security that fully 1,800,000 aged persons in the United States were dependent upon relatives, public aid, or private philanthropy for support. The United States stood, among the populous nations, with China and India in its disregard of the problem of old age.

Point is given to these observations by the results of an extensive study of industrial pension systems made by the Pennsylvania Old Age Pension Commission. Some 3000 of the larger industrial firms in the United States were circularized. Of the 1600 replies received, only 370 firms had formal pension schemes and another 224 paid pension allowances in individual cases. The total number of recipients did not exceed 100,000. The average pension amounted to $485 per year. Private pension systems were for the most part confined to public service industries. Only the largest and most prosperous concerns could afford private pension schemes. The report was of the opinion that private pension schemes were hopelessly inadequate in coping with old age, did not protect the employee, and that "the mixture of charity and business was hardly desirable."

Progress in United States. At the beginning of 1927 four States had non-contributory old-age pension laws on their statute books. These were Kentucky, Montana, Nevada, and Wisconsin, as well as Alaska. During the year Colorado and Maryland passed similar laws, raising the total to six. In Wyoming the legislature passed a bill but the governor vetoed it. Legislatures of 1927 authorized the study of the plan by commission in the following States: Arkansas, California, Iowa, Maine, and New Jersey. The 1926 New York commission was continued. In Indiana, Nebraska, and Washington old age pension bills passed a single house of the legislature.

It may be of interest at this point to state the status of these American attempts to cope with the problem. In only two States were the laws operative. Montana had paid pensions since 1923 and Wisconsin (in a few counties) since 1925. In all, one thousand persons were the recipients of such pensions. In almost all the States the laws were operated through the county officials. In Nevada and Maryland the retirement age was set at 65; in the other States it was 70. In Nevada, Wisconsin, Colorado, and Maryland the maximum amount of the pension was $1.00 per day; in Montana it was $300 per year; in Kentucky, $250. State residence requirements were high. Wisconsin, Colorado, and Maryland demanded a continued State residence of 15 years for eligibility; Kentucky and Nevada demanded 10 years; Montana, 25 years. The weakness of all the systems was that the pensions must come from county funds. In only one State, Wisconsin, were State contributions made and here it was but one-third of the amount paid out.

In New York State, during the year, there was considerable activity evidenced. The State Federation of Labor, at its meeting in August, decided to support actively in its legislative program an old-age pension plan. In December, a meeting, called by the American Association for Old Age Security, enlisted the support of labor, civic and fraternal organizations toward the same end. It should be said that the American Association for Old Age Security was organized early in the year for the purpose of enlisting interest in old-age pensions. Bishop Talbot of Pennsylvania was president. Abraham Epstein, formerly research director of the Pennsylvania Commission on Old Age Pensions, was executive secretary.

In the spring of 1927 Canada adopted a non-contributory old-age pension system for the whole country. The following countries had the non-contributory system: Australia, Denmark, Finland (in part), Great Britain (in part), Irish Free State, Isle of Guernsey, Newfoundland, New Zealand and Norway.

The following countries had the contributory insurance system: Austria, Belgium, Bolivia (in part), Brazil (in part), Bulgaria, Chile, Cuba (in part), Czechoslovakia, France, Germany, Great Britain, Greece, Iceland, Italy, Netherlands, Poland, Portugal, Rumania, Russia, Jugo-Slavia, Spain, Sweden, Switzerland (one canton), Uruguay.

Japan still practiced voluntary insurance exclusively.

CANADA. The Canadian non-contributory pension bill passed both houses of the Parliament in March. The general scheme for all the provinces was laid out by the act; upon acceptance by a particular province the Federal government assumed half of the pension. The maximum pension was $240 a year. The pensioner must be: a British subject, 70 years or over, a Canadian resident for 20 years, and a resident of the province for the last 5 years, and may not have (with the pension allowance) an income in excess of $365 per year.

OLIVER, JOHN. Canadian statesman, died in Victoria, B. C., on August 18. Born in Derbyshire, England, July 31, 1856, he had very little schooling in his early days, going to work in the coal mines when he was 10 years of age. His family emigrated to Canada when he was 13. Always longing for independence he left home when quite a young man and took up a homestead, in the Delta district of British Columbia, which was then subject to disastrous floods, but converted gradually by him into a rich farm. Gradually he worked his way to membership in the provincial legislature, and, in a few years, notwithstanding reverses, he became known as one of the leaders of the Liberal party in British Columbia. In 1916 he received the dual posts of Minister of Agriculture and of Railways, and on Mar. 6, 1918, he became Premier of British Columbia.

OLYMPIC GAMES. The Olympic Games were to be held in 1928 at Amsterdam, Holland. According to arrangements made during 1927, it was planned to have the United States entered in practically every event with perhaps the exception of hockey and some other minor sports. Germany for the first time since the World War was to participate in this classic and it was the opinion of those competent to judge that that country would seriously challenge the supremacy won by the United States in former Olympic contests.

OMAN. An independent Moslem state in southeastern Arabia, extending for about 1000 miles along the southern coast of the Gulf of Oman; guaranteed in its integrity by Great Britain and France. Area, about 82,000 square miles; population estimated at 500,000; chiefly Arabs, but with a considerable negro element along the coast. The capital, Muscat, and the neighboring town of Matrah, have a combined population of about 20,000 made up almost entirely of negroes and Baluchis. Imports, which consist chiefly of rice, coffee, and cotton piece goods, and exports, which comprise dates, dried limes, pomegranates, and dried fish, are from and to India for the most part. The reigning Sultan in 1927 was Seyyid Taimur bin Faisal bin Turki, who succeeded his father Oct. 5, 1913.

O'MARA, JOSEPH. Irish dramatic tenor, died in Dublin, August 5. He was born in Limerick, July 16, 1866, and studied singing in Milan. He made his début at the Royal English Opera House, London, Feb. 4, 1891, in Sullivan's *Ivanhoe* and immediately became a prime favorite on the operatic as well as the concert stage. In 1902 he organized his own company, with which he toured England and Ireland, and in 1908 he made a very successful tour of the United States.

O'NEIL, CHARLES. American naval officer, died February 28. He was born in Manchester, England, Mar. 15, 1842, and went to the United States at an early age. He entered the navy in 1861 and very soon became an officer on the sloop of war *Cumberland*. He was at the capture of Fort Hatteras, and was in an engagement with the Confederate iron-clad *Merrimac* and attacks on Fort Fisher. He won rapid promotion, eventually becoming rear-admiral in 1901. He retired in 1904.

ONO, YEIJIRO. Japanese banker, died at Tokio on November 26. He was born in 1864 at Yamagawa and studied at the Doshisha University, Kyoto, until 1880 when he went to the United States. He graduated from Oberlin College in 1887, and received the degree of Ph.D. at the University of Michigan in 1889. He returned to

Japan the year following and established a political school. He held several important banking posts and in 1913 became governor of the Industrial Bank of Japan.

ONTARIO. The second largest province of the Dominion of Canada (after Quebec), situated between Quebec on the east and Manitoba on the west. Area, 407,262 square miles; population according to the census of 1921, 2,933,662. The capital is Toronto, with a population in 1921 of 521,893. Other large cities: Ottawa (capital of the Dominion), 107,843; Hamilton, 114,151; London, 60,950. In 1925 there were 7069 elementary schools and 408 secondary schools, attended by 727,325 pupils, and taught by 17,977 certificated teachers.

Agriculture is the chief occupation of the province. The land under cultivation was estimated at 14,000,000 acres. The acreage and yield of the more important crops in 1926 were: Wheat, 922,512 acres, 20,018,000 bushels; oats, 2,831,755 acres, 94,864,000 bushels; barley, 449,095 acres, 13,967,000 bushels; rye, 86,355 acres, 1,580,000 bushels; flax, 7712 acres, 97,000 bushels; mixed grain, 770,981 acres, 27,293,000 bushels; other grains, 463,781 acres, 15,024,000 bushels; potatoes, 153,468 acres, 8,916,000 cwts.; roots, 107,181 acres, 16,495,000 cwts.; hay and clover, 3,383,722 acres, 4,443,000 tons; fodder corn, 367,772 acres, 3,211,000 tons. The farm values for 1925 were: Land, $879,212,000; buildings, $490,027,000; improvements, $164,188,000; livestock, $233,160,000. The total value of the metallic mineral production in 1925 was $62,740,622; of the non-metallic minerals, $23,052,014. The revenue for 1924–25 was $46,602,803, and the expenditure, $45,462,178. There are about 11,000 miles of railway.

The executive power is vested in a lieutenant-governor appointed for five years by the governor-general of Canada, and a responsible ministry; legislative power is in a single chamber of 111 members, elected for four years. Women have the franchise and the right to election to the chamber. Ontario is represented in the Dominion Senate by 24 members and in the House of Commons by 82. Lieutenant-governor in 1927, W. D. Ross; Prime Minister and President of the Council, G. Howard Ferguson; Attorney-general, W. H. Price; Treasurer, J. D. Monteith; Secretary and Registrar, L. Goldie; Education, G. Howard Ferguson; Agriculture, J. S. Martin; Public Works and Highways, G. S. Henry; Lands and Forests, W. Finlayson; Mines, Charles McCrea; Labor and Health, Dr. Forbes Godfrey; Ministers without Portfolio, R. J. Cooke, Leeming Carr, and D. Jamieson. Sale of liquor at government stores throughout Ontario was begun June 1. The new law which replaced the prohibition statute allows the government to sell liquor to persons possessing permits. See Canada.

OPERA. See Music.

OPERTI, Albert. Italian artist, died in New York on October 29. Born at Turin, Italy, Mar. 17, 1852, he entered the British navy as midshipman after attending high school in Dublin and Glasgow. Concluding that his real calling was to be painting, he resigned from the navy in 1868 and studied art in London and Paris. He went to New York in 1880 and commenced work as illustrator, caricaturist and scenic artist. Having made a study of Arctic history he accompanied Lieut. Robert E. Peary on two expeditions into the polar regions.

ORANGE CROP. See Horticulture.

ORANGE FREE STATE. A province of the Union of South Africa. Capital, Bloemfontein. See South Africa, Union of.

ORCHESTRAS. See Music.

ORDNANCE. See Military Progress.

ORE DEPOSITS. See Geology.

ORE DRESSING. See Metallurgy.

OREGON. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 783,389. The estimated population on July 1, 1927, was 890,000. The capital is Salem.

Agriculture. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, winter	1927	900,000	23,400,000	$26,208,000
	1926	880,000	16,720,000	20,064,000
Wheat, spring	1927	165,000	3,382,000	3,788,000
	1926	146,000	1,986,000	2,383,000
Barley	1927	91,000	3,185,000	2,452,000
	1926	82,000	2,296,000	1,492,000
Hay	1927	1,133,000	2,342,000[a]	25,143,000
	1926	1,147,000	2,084,000[a]	21,294,000
Potatoes	1927	52,000	6,240,000	4,680,000
	1926	45,000	4,500,000	4,500,000
Corn	1927	81,000	2,916,000	2,770,000
	1926	75,000	2,475,000	2,475,000
Oats	1927	310,000	10,540,000	5,586,000
	1926	304,000	8,816,000	4,408,000
Hops	1927	16,000	15,040,000[b]	3,760,000
	1926	13,000	16,900,000[b]	4,225,000

[a] tons, [b] pounds.

Mineral Production. In point of total value of output, stone, sand and gravel and clay products constituted the chief part of the State's mineral production. The total of the State's mineral production in 1925, duplications eliminated, was $7,826,711; in 1924, $7,364,232.

The value of gold, silver, copper, and lead produced in Oregon in 1927 as estimated by the U. S. Bureau of Mines, was $365,000, an increase of $30,260, or 9 per cent, as compared with the value of metals produced in 1926. Gold increased 3 per cent, the output being estimated at 13,600 ounces, valued at $281,000. The output of silver, 31,700 ounces, also showed an increase but there was a decrease in value, making the production $18,000 in value. Copper amounting to 505,000 pounds, valued at $65,700, showed an increase of 70 per cent in quantity and 58 per cent in value.

Finance. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $10,692,453; their rate per capita was $12.23. They included $444,105 apportioned for education. Totals not included in the above, of $20,587 expended in public service enterprises, $2,774,337 in interest and $8,369,468 in permanent improvement outlays, brought the aggregate of State expenditure to $21,856,815. Of this, $9,343,838 was for highways; $2,480,483 being for maintenance and $6,863,355 for construction.

Revenue receipts were $22,936,659; or per capita, $26.54. Of their total, property and special taxes yielded 27.6 per cent, attaining a per capita rate of $7.26. Earnings of departments and compensation paid the State for officials' services furnished 5.2 per cent of revenue; 46.8 per cent was derived from the sale of licenses, chiefly on incorporated companies and on motor vehicles and from a gasoline sales tax.

Net State indebtedness on Sept. 30, 1926, was $38,110,862, or $43.61 per capita. Property subject to ad valorem taxation bore a valuation of $1,084,537,619. State taxes levied thereon were $5,031,170, or $5.76 per capita.

Transportation. The number of miles of railroad line in the State on Jan. 1, 1927, was 3,392.86. There were built in 1927 according to the *Railway Age* 47.25 miles of first track.

Education. By law the minimum requirement for certification of elementary school teachers was increased, from the previously existing requirement of 36 weeks, to 48 weeks from Jan. 1, 1929 to 60 weeks from Jan. 1, 1931 and to 72 weeks from Jan. 1, 1933. The school population of the State in 1927 was 256,885. There were enrolled in the public schools 185,959 pupils. Of these, 144,701 were in the elementary schools and 41,258 in high schools. Expenditure for public school education totaled, for the year, $23,783,853. The salaries of teachers averaged, for men, $167 60 a month; for women, $119.08 a month.

Charities and Corrections. The State Board of Control exerted the central authority with regard to institutions of the State for individual care and custody. According to its latest biennial report, these institutions, with their populations on Sept. 30, 1926, were: Oregon State Hospital, 1861; Eastern Oregon State Hospital, 786; Oregon State Penitentiary, 499; State Institution for the Feeble-minded, 805; Oregon State Training School, 193; Oregon State Tuberculosis Hospital, 162; Oregon State School for the Blind, 46; Oregon State School for the Deaf, 119; Oregon State Industrial School for Girls, 72; Oregon State Soldiers' Home, 115; Oregon Employment Institution for the Blind, 54. According to statistics furnished by the Department of Commerce, inmates of the State penitentiary on Jan. 1, 1927, numbered 572; persons in State hospitals for mental disease, 2019.

Legislation. The Legislature convened in regular biennial session January 10. It had before it the problem of meeting a State deficit of about $1,500,000 in the form of overdue obligations left on its hands by the outgoing State administration. A provision of the State constitution limited the amount of taxation that could be imposed; Governor Patterson recommended that the Legislature initiate an amendment of this feature of the constitution and that it abstain from avoidable appropriation measures. It nevertheless enacted a considerable number of bills providing money for salary advances, armory construction, payment of claims and buildings for higher education, to an aggregate of $1,300,000; these the Governor in large part vetoed. Measures submitting to the voters at a special election proposals to increase the State tax base to $3,500,000 and to give the State Tax Commission supervision over county assessors were passed.

Political and Other Events. At a special election on June 28, proposals to raise taxes in order to restore State finances were heavily defeated. The Governor's proposed remedy of a State income tax was rejected by a majority of more than 20,000. The plan to fix a tax levy base of $3,500,000 and that to have the State Tax Commission supervise local assessments went down before still heavier majorities. The amendment of the State constitution with regard to the disqualification of negroes from the suffrage was approved, as were an amendment to criminal procedure and one to do away with swearing unregistered voters at the polls. A pay increase to $10 for legislators and a measure relative to raising money for a veterans' memorial hospital in Portland were disapproved.

Officers. Governor, I. L. Patterson; Secretary of State and State Auditor, Sam A. Kozer; Treasurer, Thomas B. Kay; Attorney-General, I. H. Van Winkle; Superintendent of Public Instruction, Charles A. Howard.

Judiciary. Supreme Court: Chief Justice, Thomas A. McBride; Associate Justices, Henry J. Bean, John L. Rand, George M. Brown, George H. Burnett, Harry H. Belt and O. P. Coshow.

OREGON, University of. A State institution of higher education at Eugene, Oregon; founded in 1872. The enrollment for the autumn term of 1927 was 3073, divided as follows: freshmen, 881; sophomores, 703; juniors, 574; seniors, 474; graduate students, 95; law school, 73; medical school, 223; specials, 50. Of this total 1753 were men and 1320 women. In the summer session of 1927, 1243 were registered, of whom 332 were men, and 911 women; of these 1035 were under-graduate and 208 graduate students. The faculty in the autumn term of 1927 numbered 204.

In October, Burt Brown Barker, LL.B., an attorney of New York City, was elected vice president of the University, to be associated with the president in the administration of its affairs. The total income for the year 1927 was $1,625,918.16. The main library contained 179,567 volumes and the medical school library 7500. During the year the University received a gift of $128,500 from the General Education Board for the medical school and a bequest valued at approximately $50,000 from Mrs. Mary Ross Woodward, for the construction of a men's dormitory. President, Arnold Bennett Hall, J.D., LL.D.

OREGON STATE AGRICULTURAL COLLEGE. An institute for higher education at Corvallis, Oregon; founded in 1868, when the State designated Corvallis College as the recipient of the Federal land-grant funds and began to appropriate State funds. It was permanently designated as the State agricultural college in 1870 and became wholly a State institution in 1885. Degrees are granted in 10 schools. The enrollment for the fall term of 1927 was 3433, of whom 2312 were men and 1121 women. The summer session registration was 1194. There were 299 members on the teaching faculty. The income for 1926–27 from the original land-grant fund and other Federal funds, from the State of Oregon (millage tax), student fees, etc., as well as certain appropriations from Oregon counties for extension work, totaled $2,417,932, as follows: resident instruction, $1,340,779; agricultural experiment station, $241,951; extension service, $298,775; student activities funds, $165,151; miscellaneous, $371,276. There were 75,221 volumes in the library. A new poultry building, of brick and terra cotta, three stories high, was completed during the year, the cost being $106,976. New greenhouses, costing $61,749, were also completed. A new Physics

Building, costing $144,377, and the Memorial Union Building, costing $500.000, were under construction.

ORGANIC CHEMISTRY. See CHEMISTRY.

ORGANISTS. See MUSIC.

ORISKANY, N. Y. See CELEBRATIONS.

ORNDORFF, WILLIAM R. American educator, died at Ithaca, N. Y., November 1. He was born Sept. 9, 1862, at Baltimore, Maryland, and was educated there at City College and Johns Hopkins University. He afterwards studied at the Universities of Greifswald, Berlin, Heidelberg and Munich. He joined the department of chemistry at Cornell University and eventually became professor of organic chemistry. He translated Dr. E. Salkowski's *Laboratory Manual of Physiological and Pathological Chemistry* (1904), and was co-author in the revision of Remsen's *Organic Chemistry* (1922).

OSPINA, GENERAL PEDRO NEL. Colombian statesman and ambassador, died July 1. Born in Bogotá, July 24, 1858, he was the son of a former president of Colombia. He received an early education in Bogotá afterwards studying at the University of California and Europe. He served in the State Assembly of Antioquia for several years, and distinguished himself on the side of the government during the revolutionary years of 1889–1902. For a brief period he was Minister of War. At the outbreak of the World War he was Minister to Belgium, returning home to become Governor of Antioquía where he contributed much to the development of its industries.

OSTERHAUS, HUGO. American naval officer, died at Castle Point, N. Y., on June 11. Born June 15, 1851, at Belleville, Illinois, he was graduated at the U. S. Naval Academy in 1870, and rose in successive promotions till he became commander in 1901, captain in 1906, and rear-admiral in 1909. After serving at sea he was a member of the teaching staff of the Naval Academy in 1892–95, in 1897–99 and in 1901–03. He commanded the *Cincinnati* from 1904 to 1905, was member of the board of inspection and survey 1905–07, commanded the second division of the Atlantic fleet in 1910, and was commander-in-chief of that fleet in 1911. On June 15, 1913, he was retired.

OTTAWA. See CELEBRATIONS.

PACIFIC RELATIONS, INSTITUTE OF. This Institute, as described in the YEAR BOOK for 1925, is an unofficial conference and research body made up of study groups in the various countries of the Pacific area, maintaining permanent headquarters and a central secretariat at Honolulu, Hawaii. It is definitely an inquiry body, endeavoring through the frank revelation of facts about the countries and the peoples involved to arrive at a clearer understanding of the problems which arise amongst these countries and peoples. It does not essay to solve those problems, but to give to the world data upon which such solutions might be based. It seeks to arrive at these more or less obscure data through two channels: (1) a full, free discussion of the factors which usually do obscure facts —prejudices, racial and national antipathies, misconceptions, and grievances; (2) organized research into vital conditions in the countries themselves.

1927 CONFERENCE. The second biennial conference of the Institute took place in Honolulu in July. Nine national groups located or having vital interests in the Pacific area met through their unofficial representatives around the discussion tables of the Conference. The members numbered 136, 5 each from Australia and New Zealand, 15 from Canada, 14 each from China and Great Britain, 3 each from Korea and the Philippines, 18 from Japan, and 44 from the United States. The Hawaii Council had 15 members.

President Ray Lyman Wilbur of Stanford University, California, presided over the general sessions of the Conference and the meetings of the Pacific Council. The Conference agenda covered a wide range of questions vital to the existence of Pacific peoples. These subjects were developed principally in informal round table discussions, based upon the results of research presented in the form of data papers by the various groups and circulated among the members in advance.

The programme consisted first of three general sessions at which the background was painted in, in preparation for the detailed discussion of concrete problems which was to follow. Comprehensive addresses were made covering the physical, or geographic, aspect of the Pacific area as it has bearing upon the relations of its peoples; the races of the Pacific as a key to an understanding of their divers attitudes and interests; and the essence of the Pacific problem of peaceful relationship as it presents itself to the world. Further brief statements were made on behalf of the respective national groups attending the conference, in which were given résumés of conditions in those countries during the two-year interim since the first conference. These statements presented succinctly the aims, aspirations and grievances of each nation. The subjects were as follows:

1. China's External Political Relations (a) Tariff Autonomy, (b) Extraterritoriality (c) Concessions, Settlements and Leased Territory. 2. Population and Food Supply in Pacific Countries 3. The Mandated Territory of the Pacific. 4. International Education and Interracial Relations. 5. An Evaluation of Foreign Missions as a Factor in Pacific Relations. 6. Communications in the Pacific Area. 7. Foreign Investments as an Influence in the Orient. 8. Diplomatic Relations between Pacific Countries. 9. Industrialization of the Orient. 10. Problems of Immigration and Emigration on the Pacific.

PACIFIST MOVEMENTS. See PEACE AND PEACE MOVEMENTS.

PACKING INDUSTRY. See LIVESTOCK.

PAHANG, pähäng′. See FEDERATED MALAY STATES.

PAINE, WILLIS SEAVER. American banker, died in New York City on April 13. Born in Rochester, N. Y., Jan. 1, 1848, he was graduated from the Rochester Collegiate Institute in 1864, and from the University of Rochester in 1868. While still in college he studied law, continued this work after graduation and was admitted to the bar in 1869. He became New York State Superintendent of Banks in 1885. Later he was chairman of the finance committee of the Tradesman's National Bank and president of the Consolidated National Bank of New York. Mr. Paine was an organizer of the trust company section of the American Bankers Association. His books on the New York and National banking laws went through many editions.

PAINTING AND SCULPTURE. The year 1927 in the art world was noteworthy for an unprecedented activity in the auction galleries, in which the grand total of sales far outstripped the season of 1925–26, and also by the astonishing number of significant exhibitions held in New York galleries. (See ART EXHIBITIONS.)

Through the bequest of the late Lord Iveagh, the British nation came into possession of his wonderful estate, outside of London, to be used as an art museum for his collection of old masters, principally English eighteenth century, and valued at 300,000 pounds.

Interesting single events in the world of art were: the discovery of a Rembrandt painting among old paintings stored away in the National Art Museum of Budapest; a fine example by Rubens, "Saint Cecelia," was unearthed in London; a painting by Titian was discovered in Vienna, a religious subject, "Virgin Reading a Book with the Christ Child in her Arms"; "Portrait of a Nun," by Velásquez, found in a convent in Spain. In Venice the Palazzo Balbi a beautiful sixteenth century edifice was restored, richly furnished and opened to the public; also the Ca'd'Oro, one of the most beautiful of Venetian palaces of the fifteenth century was thrown open as a public museum. The Italian government purchased the famous Villa Farnesina, erected in Rome in 1511 after designs by the famous architect Peruzzi, to be used as a public monument. The long anticipated statue erected to the memory of Paul Cézanne was completed in the Luxembourg Gardens, Paris, and in Spain occurred the centenary celebration of its great painter Francisco Goya.

In New York City the old Gracie Mansion was converted into a Museum of the City of New York; and a "Gallery of Contemporary Art," the first in America, was established by New York University. The new buildings for the California School of Fine Arts were completed and opened in San Francisco. The commission for the monument to "The Pioneer Woman," to be erected in Oklahoma through the generosity of E. W. Marland, was awarded to Bryant Baker as the result of a nation-wide vote. His model depicts a young mother in a sunbonnet with a Bible under her arm, leading her little son by the hand. Maurice Sterne, in competition with ten of America's foremost sculptors, was awarded the commission for the monument to "New England's Founders," to be erected as a gift from the late Mrs. Rogers Kennedy. The winning design consists of a large base with figures in relief surmounted by two monumental figures of a young man and a young woman, the whole treated in a simple yet grandiose manner.

BIBLIOGRAPHY. Notable art publications of the year include: Frank Jewett Mather, Jr., *Modern Painting;* André S. Blum, *A Short History of Art: From Prehistoric Times to the Present Day;* a vast and complicated subject compressed into one volume more perhaps like a compilation of innumerable facts than a history of art; Thomas Bodkin, *The Approach to Painting;* Clive Bell, *Landmarks in Nineteenth Century Painting,* a sprightly and entertaining volume; Oscar Hagen, *Art Epochs and their Leaders;* John C. Van Dyke, *New Guides to Old Masters, Florence;* an interesting and stimulating guide-book by America's veteran art critic; Isham and Cortissoz, *History of American Painting;* E. A. Gardiner, Litt.D., *The Art of Greece,* a scholarly work; Wehle and Bolton, *American Miniatures,* a fine comprehensive treatment; *Spanish Art,* the *Burlington Magazine* monograph containing the most comprehensive view of this subject yet published in English; Joseph Pijoan, *History of Art;* a monumental work in Spanish; E. Flagg, *Early American Children's Books;* Osbert Burdett, *William Blake;* The Hon. Evan Charteris, K. C., *John Sargent;* Franz Drey, *Carlo Crivelli,* a critical and scholarly volume; J. B. Manson, *Life and Work of Edgar Degas;* an excellent exposition of this modern master; R. L. Hobson, *Chinese Art,* a monumental effort.

NECROLOGY. The necrology list of 1927 included, among American painters and sculptors: Edward Henry Potthast, well-known mural and landscape painter, especially noted for brilliantly handled beach scenes; Elizabeth Wentworth Roberts, landscape painter; Frederick Melville Dumond, painter of the western desert, brother of Frank Vincent Dumond; Helen K. McCarthy, landscape and portrait painter; Oliver Dennett Grover, landscape painter, well-known member of the Chicago Artists' Association. Also, Guy Lowell, internationally known architect, designer of the Boston Museum of Fine Arts, the new Court House, for New York City, and many other important public buildings; Dr. George Byron Gordon, director of the University of Pennsylvania Museum, one of the world's best-known archæologists, whose untimely death was caused by a fall down a flight of steps; John Fraser, president of the J. J. Gillespie Fine Arts Gallery of Pittsburgh; George Leland Hunter, tapestry expert and writer; Max Williams, art collector and dealer in prints, Henry E. Huntington, world-famous art collector.

In Great Britain the list includes: Sir Luke Fildes. R. A., veteran figure and portrait painter; Ambrose McEvoy, portrait painter, well known for his charming renditions of the British aristocracy and wealthy Americans; Frederick Cayley Robinson, painter; Sir Whitworth Wallis, Keeper of the Birmingham Art Museum; John Crompton, headmaster of Heatherley's Art School; Henry Holliday, designer of stained glass and painter of the oft reproduced "Meeting of Dante and Beatrice"; Sir Sidney Colvin, veteran art critic; J. D. Milner, Director of the National Portrait Gallery; Martin Leggatt, print expert, and Eugene Cremetti, well-known art dealer.

From Spain were reported the deaths of Gili Roig, landscape painter; Enrique Estevan, painter of military subjects; Mariano Pedrero, painter and illustrator; Olivier Aznar, portrait painter; Martines Acosta, landscape painter. In France occurred the death of Armand Guillaumin, last member of the original group of Impressionists, and intimate friend of Monet, Renoir, Pissaro and Cezanne, aged 87 years. Others from the European list were: Ettore Ximenes, one of Italy's foremost sculptors; Adolph Hengler, Munich painter and teacher; Professor Darmstüdter, connoisseur of porcelain; Hermann Muthesius, a pioneer in modern architecture and arts and crafts in Germany; Giulio Glatter, well-known Hungarian painter; Dr. Gabriel de Ferey, late director of the Museum of Fine Arts, Budapest; M. Fierens-Gevaert, of the Royal Museum of Brussels, and Abraham Preyer, retired art dealer, also of Brussels. See also ART EXHIBITIONS; ART MUSEUMS; ART SALES; and special biographical articles on artists who had died during the year.

PALÆONTOLOGY. See GEOLOGY.

PALESTINE. A territory comprising that part of historic Palestine which lies to the west of the River Jordan; formerly a vilayet of the Turkish province of Syria; since the War a new state organized under British mandate, providing a national home for the Jews.

AREA AND POPULATION. The area of Palestine under British mandate is about 9000 square miles. The population, according to the census of Oct. 23, 1922, was 757,182, of whom 590,890 were Moslems; 83,794 Jews; 73,024 Christians; 7028 Druses; 163 Samaritans; 265 Bahais; and the remainder Sikhs, Hindus, and Metawilehs. Capital, Jerusalem, with a population in 1922 of 62,678. Other large towns with their populations in 1922 are: Jaffa, 47,709; Haifa, 24,634; Gaza, 17,480; Hebron, 16,577; Nablus, 15,947. The Jewish settlements are grouped in the four districts of Judea, Samaria, and Upper and Lower Galilee. The total population of Jews permanently settled in Palestine has risen since the war from 55,000 to 130,000, or nearly 70 per cent of the entire population. The fact that the proportion of immigrants having independent means is rapidly increasing is even more important for the future economic development of the country than is the increase in the actual number of immigrants.

Fewer immigrants entered Palestine in 1926 than in 1925, the total for the year being 13,910; emigration, which in 1926 totaled 9429, left a net gain of 4481. The tide of emigration set in early in June, 1926, on account of the crisis and continued to the end of the year. It is estimated that 13,000 tourists visited Palestine in 1926, 75 per cent coming from the United States.

EDUCATION. The approximate number of children between the ages of three and 18 in Palestine is as follows: Moslems, 175,000; Jews, 48,000; Christians, 25,000. The schools maintained by the government number 315 and contain 19,881 scholars, the great majority of whom are Moslems. The Christian and Jewish communities provide to a very large extent for the education of their own children. The Zionist organization controls 255 educational institutions attended by about 25,500 pupils. The Christian schools, maintained by various foreign and local religious bodies, number about 184, including several secondary schools and two higher colleges; some 15,700 pupils are on their rolls. There are also about 50 private Moslem schools maintained by local committees and attended by about 3500 children. A Hebrew University on Mount Scopus, Jerusalem, was inaugurated on Apr. 1, 1925.

PRODUCTION. Agricultural production was lower in 1926 than in 1925, the adverse weather conditions having such a serious effect that the crop of oranges, the only export commodity of importance, totaled only 1,515,000 cases as against 2,146,000 cases in 1925. The decrease was attributed to frosts at the beginning of 1926. Owing to the increased production of Jaffa oranges, growers were endeavoring to develop new markets for this product. Keener competition was being encountered abroad from Spanish oranges, and the need of new markets was considered important. England continued to be Palestine's most important market for oranges, followed by Egypt and Turkey. Cereal crops were badly affected by abnormal heat during the growing season. The 1926 crop of tobacco totaled 1,040,000 pounds, as against 1,270,000 pounds in 1925. Acreage planted was slightly less, but quality was reported to be better.

Industrial production during 1926 included 44,500 tons of artificial Portland cement; 4,563,563 sand-lime bricks; and 489 tons of cigarettes, cut tobacco, and tumbak as against 434 tons in 1925. The production of salt is a government monopoly; during 1926, 5549 tons of salt were sold, as compared with 4794 tons in 1925.

COMMERCE. Palestine's foreign trade in 1926, exclusive of goods in transit and specie shipments, was marked by a 12 per cent reduction in imports as compared with 1925. The imports in 1926 were valued at £E6,429,245 ($32,146,225). Imports in transit in 1926 amounted to £E73,251 as compared with £E71,776 in 1925; the corresponding values for specie imports were £E10,835 and £E193,656. The grand total of imports during 1926 thus reached the aggregate of £E6,513,331, as compared with £E7,603,923 in 1925. The export trade of Palestine, exclusive of transit, specie, and reëxport items, during 1926 amounted in value to £E1,275,625 ($6,378,125).

FINANCE. Returns for the 1925–26 fiscal year in Palestine showed receipts of £E2,739,090 and expenditures of £E2,040,330, or a surplus of £E608,760. The Palestine loan of £4,500,000 was approved by the British government at the end of 1926. From this loan the government has made provision of about £2,000,000 for payment on account of Palestine's public debt; the balance is designated for public works—railway construction, port improvement, etc.—and for the acquisition of the existing railway from the British government.

The Government of Palestine had taken steps for the issuance of a separate currency for Palestine in place of the Egyptian currency now circulating. The standard unit was to be the Palestine pound, divided into 1000 mills and equivalent in value to the pound sterling. It was expected that the currency would be ready for issue during the second half of 1927. The Egyptian money now in circulation, which is estimated at £E1,300,000, will be gradually withdrawn.

COMMUNICATIONS. During 1926 foreign shipping to the extent of 2651 steam and sailing vessels, with an aggregate register of 1,614,434 tons entered Palestine ports. In the coastal trade 1043 vessels of 726,958 tons were engaged. The railway lines total slightly over 774 miles and are all operated by the government.

GOVERNMENT. Under the constitution adopted on Sept. 1, 1922, executive power is vested in a High Commissioner and an executive council, and legislative power in a body of 22 members besides the High Commissioner, consisting of 10 official and 12 unofficial members. The latter are elected and there must be not less than two Christian and two Jewish members. The Jewish population has an unofficial elected National Committee to represent the Jewish population in its dealings with the administration. The British government and Palestine administration recognize the World Zionist Organization which in Palestine is represented by the Palestine Zionist Executive, as the agency of the Jewish people in all matters pertaining to the upbuilding of the Jewish National Home.

High Commissioner in 1927, Field-Marshal Lord Plumer (appointed July 1, 1925).

History. Palestine passed through a very severe year in 1927 from the point of view of economic development. The crops were poor, trade was stagnant, and a severe earthquake added to the woes of the country in July. Extensive property damage was placed at $1,000,000 to $2,000,000 and the number of casualties at 1000 of whom about 200 were killed. Many of the newer houses built since the war were destroyed, while the older ones which had been through many earthquakes previously suffered the least damage. Press accounts stated that it was the worst disturbance in more than a century. In December serious labor troubles were reported from the orange groves of Petach Tikveh, when Jewish laborers attempted to prevent Arab workers from going to the groves. For the Zionist movement, see Jews.

PALMER, William Pendleton. An American steel manufacturer, died at Cleveland, Ohio, December 17. He was born in Pittsburgh, Pa., June 17, 1861, and graduated from the Central High School of his native city in 1878. He commenced his business career as an office boy in the employment of the Carnegie Company in Pittsburgh. He became secretary of Carnegie, Phipps and Company in 1887, assistant to the president of the Carnegie Steel Company, 1895, and in 1899 he was appointed president of the American Steel and Wire Company, a post he held until his death.

PANAMA. A republic of Central America, lying between Costa Rica and Colombia, constituting an independent state after November, 1903; formerly a department of Colombia. Capital, Panama.

Area and Population. Panama has an extreme length of 480 miles, and its width varies from 37 to 110 miles. The area is estimated at 32,380 square miles; population, according to the census of 1921, 442,486. The natives are a mixed race, combining Spanish, Indian, and negro blood. The larger cities are: Panama, the capital, 59,458; Colon, 31,203. The movement of population in 1925 was: Births, 12,013; deaths, 6020; marriages, 589. Of the births, 8617 were illegitimate.

Education. Elementary education is compulsory and free for all children from seven to 15 years of age. There were 446 primary schools in 1926, with 1492 teachers and an enrollment of 54,214 pupils; the number of private schools reached 71 with an enrollment of 9156 pupils; and the enrollment in the night schools for adults was 1345. The number of students enrolled in the National Institute amounted to 1573. In the industrial and vocational courses the enrollment was 573, with an average attendance of 520.9. In the Normal School the enrollment was 696 and the average attendance 666.2. The enrollment in the higher courses (law, pharmacy, agriculture) was 67 and the average attendance 58 students.

Production. Panama possesses a very rich soil, but only a very small part of it is properly cultivated. The chief product is the banana, but the growing of coffee, sugar and tobacco is becoming important. The banana crop in 1925 was valued at $1,500,000. Coffee is grown in the regions along the Costa Rican frontier. Other products include rubber, cacao, coconuts, cabinet woods, copaiba, sarsaparilla, and ipecacuanha.

Commerce. In 1926, the total foreign trade amounted to $16,938,729, of which $14,288,729 represented imports and $2,650,000 exports (estimated). The imports in 1925 were valued at $14,592,053 and the exports at $2,796,000 (estimated).

Finance. As the National Assembly had passed no budget law for the two-year period from July 1, 1927 to June 30, 1929, President Chiari issued decree No. 65 on Aug. 19, 1927, basing the new budget on the former but omitting items valid once only and adding others authorized by the National Assembly. The budget for 1927–28 was balanced at $14,302,488, to be expended as follows by the following ministries: Government and Justice, $3,943,932; foreign relations, $595,875; treasury, $3,766,740; public instruction, $3,050,500; agriculture and public works, $2,945,441. Special funds available outside the regular budget included: Chiriqui Railroad extension loan, $2,351,261; highway loan, $365,389; Bocas del Toro waterworks, $100,000; sum for payment on national defense bonds, $6500; and deposit in National City Bank of New York for payments on the loans of 1926–56 and 1926–61, $188,077.

Communications. A railway 47 miles long, belonging to the United States government, connects the ports of Colon and Panama. In the Province of Bocas del Toro, the United Fruit Company owns about 140 miles of track with branches. This railroad line extends into Costa Rica and its eventual terminal will be Port Limon.

Government. Under the constitution adopted Feb. 13, 1904, and amended Dec. 26, 1918, executive power is vested in the president elected for four years and ineligible for the succeeding term; and legislative power in a chamber of deputies of 46 members, elected for four years. President in 1927, Rodolfo Chiari, assumed office, Oct. 1, 1924.

History. At the beginning of the year there was serious opposition to the treaty signed between Panama and the United States which was discussed in the preceding Year Book. The legislature virtually rejected the treaty and suggested that President Chiari negotiate further with the United States. The provisions of the treaty virtually made Panama a possession of the United States in war time and a military protectorate in peace time. Another cause of friction, which was the basis of an exchange of notes between the two governments, and which caused considerable anti-American feeling in the Central American republic, was the claim that the stores operated in the Canal Zone caused a considerable loss of trade in the neighboring country. To the government's contention that these stores were operated in violation of the Canal Treaty, President Coolidge replied that this matter was specifically provided for by the treaty of 1926 and would be cleared up when that treaty was ratified. Panaman organizations threatened the use of the boycott against American goods.

A slight flurry was caused in the Assembly of the League of Nations in September when the representative from Panama claimed that his country had sovereignty over the entire Panama Canal Zone despite the rights which had been granted to the United States government there. If the United States failed to recognize this sovereignty the League should intervene and the matter should be taken up with the Permanent Court of International Justice at The Hague. Secretary of State Kellogg stated shortly afterwards that there had never been any discussion concerning the sovereignty of the Canal Zone with the Panaman government and that, even if there were, the League of Nations had absolutely no jurisdiction in the matter. The President of Panama requested the League delegate to explain his actions, which were not in accord with his own (the President's) views. Nothing further came of the subject and the year closed without any action being taken on the troublesome question of the treaty with the United States.

PANAMA CANAL. The total number of commercial transits and the aggregate tolls collections for the calendar year 1927 established new high records for a year's traffic through the Canal. The commercial transits, 6085 in number, exceeded by 610 the previous record of 5475 transits for the fiscal year ending June 30, 1927, and the tolls collected aggregated $26,231,022.94, which was $1,940,059.40 in excess of the collections making the previous record of $24,290,963.54 for the fiscal year ending June 30, 1924. In 1926, $23,901, 540.04 was collected for 5420 transits.

PANAMA CANAL TRAFFIC, 1927
[By nationality of vessels]

		Tonnage					
Nationality	*Number of vessels*	*United States equivalent*	*Panama Canal net*	*Registered*		*Tolls*	*Tons of cargo*
				Gross	*Net*		
Belgian	15	73,234	79,264	108,372	69,428	$75,398 46	73,574
British	1,617	6,222,068	8,060,757	10,097,013	6,236,697	7,324,002 48	6,984,325
Chilean	29	85,674	114,442	178,775	96,496	108,068.50	78,549
Colombian	73	24,928	29,464	41,083	25,339	30,942.95	27,114
Costa Rican	3	207	207	369	216	155.25	......
Danish	55	186,985	237,200	284,350	182,899	228,687.43	328,364
Danzig	33	177.301	219,923	286,330	163,309	188,048.62	165,942
Dutch	117	452,510	620,391	736,877	445,825	559,988 13	627,487
Ecuadorian	7	1,489	1,517	2,321	1,509	1,690.86	2,138
Finnish	2	3,674	3,666	4,038	3,486	3,577.35	3,300
French	120	440,157	555,868	696,901	431,072	540,882.89	571,524
German	249	628,824	850,212	1,028,220	623,121	772,845 04	1,073,720
Greek	6	18,823	22,757	27,474	16,441	21,243.25	35,744
Honduran	1	1,042	991	1,636	940	1,189 20	552
Italian	103	420,558	491,508	647,453	398,418	495,438.41	412,833
Japanese	176	783,916	853,624	1,077,451	715,744	909,691.36	1,055,047
Norwegian	298	838,955	1,099,602	1,346,943	828,032	971,880 91	1,159,997
Panaman	123	53,943	82,868	105,211	66,193	65,958 02	81,002
Peruvian	68	105,328	161,054	232,779	127,943	129,848 35	112,337
Spanish	45	128,956	156,202	211,700	131,591	147,543.80	89,048
Swedish	102	291,512	400,861	804,103	352,170	380,606.83	630,282
United States	2,799	11,327,572	14,386,894	18,235,813	11,294,096	13,157,677 87[a]	15,346,389
Yugoslav	44	143,347	182,217	226,432	142,547	165,666.98	243,270
Totals, 1927	**6,085**	**22,360,998**	**28,610,984**	**36,381,124**	**22,353,512**	**26,231,022.94**	**29,102,538**
Totals, 1926	**5,420**	**20,254,503**	**25,836,241**	**33,044,274**	**20,329,791**	**23,901,540.04**	**27,586,051**
Totals, 1925	**4,774**	**18,141,695**	**22,958,158**	**29,368,840**	**18,228,704**	**21,380,759.70**	**23,701,277**
Totals, 1924	**4,893**	**19,414,771**	**24,411,760**	**31,127,724**	**19,440,024**	**22,809,416.34**	**25,892,134**

[a] Includes $3,400.54 collected against a transit of December, 1926.

Of the total of 6085 commercial transits for the year, 1336 were tank ships, of a combined net tonnage of 7,641,345, Panama Canal measurement, carrying a total of 7,083,480 tons of mineral oil products, and yielding $6,659,189.94 in tolls. This class comprised 21.9 per cent of the total commercial transits for the year and 26.6 per cent of the total Panama Canal net tonnage, paid 25.4 per cent of the tolls collected, and carried 24.3 per cent of the total cargo carried in commercial vessels through the Canal during the year.

From the opening of the Panama Canal to traffic, Aug. 15, 1914, to Dec. 31, 1927, a total of 43,084 ships with a Panama Canal net tonnage of 189,925,662 and carrying 200,741,014 tons of cargo, transited the Canal, paying $180,295,060.65.

PANAMA CANAL ZONE. The strip of land five miles wide on each side of the Panama Canal granted to the United States in the treaty of Nov. 18, 1903. Area, 441½ square miles, of which 106½ are taken up by Gatun Lake; civil population, June 30, 1926, 27,692, of whom 7990 were Americans. The above-mentioned treaty provided that the cities of Panama and Colon were to remain within the jurisdiction of Panama, but the United States was to have control over both the cities and their harbors in matters pertaining to sanitation and quarantine. The status of the zone is that of a military reservation under the governor of the Panama Canal, appointed by the President of the United States. Governor in 1927, Col. Meriwether L. Walker, U. S. A. See Panama Canal.

PAN AMERICAN LABOR CONGRESS. See Trade-Unions.

PAN AMERICAN UNION. An international organization maintained by the 21 American republics for the development among them of good understanding, friendly intercourse, commerce, and peace. It is controlled by a Governing Board composed of the Secretary of State of the United States and the diplomatic representatives in Washington of the other republics, and is administered by a director general and assistant director chosen by this board.

During the year six important Pan American meetings were held; the Third Pan American Commercial Conference with representatives from each republic of the continent, assembled at Washington, which had a success surpassing all expectations; the First Pan American Conference of National Directors of Public Health, Washington; the International Commission of Jurists, Rio de Janeiro; the Second Pan American Standardization Conference, Washington; the Inter-American Commission on Commercial Aviation, Washington; and the Third Pan American Congress of Architects, Buenos Aires. The Union carried on its activities to give effect to the treaties, conventions, and resolutions of the sixth international conference, and prepared a programme for the seventh conference. During the year the Union followed its usual custom of furnishing illustrated material and programmes of study for stimulating the study of Latin-American history and culture in the schools of the United States.

Among the publications of the Union in use in universities, colleges, and schools throughout the United States and in various other lands were: *Seeing South America, Ports and Harbors of South America, Seeing the Latin Republics of North America*, and *Viajando por Los Estados Unidos*. In addition to these, the Union publishes a *Bulletin*, in Spanish, Portuguese, and English, and booklets on South American countries, their capitals, products, agriculture, education, etc. During the year about 50 of these publications were issued. Statistical matter compiled by the Union related to inter-American commerce, and included a general survey of Latin-American trade for the year. The Union extended its services to women's clubs, and continued its policy of giving radio nights, introducing Latin-American music into the United States. The Pan-American Sanitary Bureau, located in the Union building at Washington, placed at the disposal of the republics of the continent the results of the sanitary progress of the year. It issues the *Pan American Sanitary Bulletin* monthly and distributes it throughout the Latin-American republics. The director general was Dr. L. S. Rowe; assistant director, Dr. Esteban Gil Borges. The headquarters are in the Pan American Union Building at Washington, D. C.

PAN-PACIFIC EDUCATIONAL CONFERENCE. See EDUCATION.

PAN-PACIFIC UNION. During 1927, this union organized branches in the Orient and in America, as well as of the Pan-Pacific Research Institution to conduct scientific investigations. Under its auspices the Junior Pan-Pacific Science Council also was organized. The Pan-Pacific Research Institution in Honolulu has seven acres of land and several fine buildings, the main one being used as a guest house for visiting scientists and as an assembly place for small science conferences. One of the buildings is used by students of all Pacific races who attend the University of Hawaii preparing themselves as future scientific workers; another building is turned over to the Junior Council as a museum, laboratory, lecture hall and for their radio experiment rooms and for photographic work.

Balboa or Pan-Pacific Day, September 17, was observed in many of the larger cities about the Pacific, the Pan-Pacific clubs holding their annual meetings and inviting men of all Pacific races. The Pan-Pacific Union had called for 1928, three important conferences—the Second Pan-Pacific Press Congress in Honolulu in July, the Second Pan-Pacific Commercial Conference in Los Angeles in August, and the First Pan-Pacific Women's Conference to meet in Honolulu early in July. In the summer of 1929 the Pan-Pacific Medical Congress was to be held in Hawaii and in 1930 the Pan-Pacific Ethical Conference.

PAPER. The statistical report of the American Paper and Pulp Association, covering the year 1927, indicated decreased production of both paper and wood pulp, the estimates showing a decline in total United States paper production of 3 per cent and 6.5 per cent for United States wood pulp products. The United States wood pulp products for 1927 stood at 4,117.000 tons, as compared with 4,395,000 tons in 1926. There was a decrease for all varieties except sulphate pulp which, used in the production of kraft and for test liner board, showed an increased demand in these fields. The estimated wood pulp production in 1927 by classes, as compared with 1926, is as follows:

UNITED STATES WOOD PULP PRODUCTION, 1927

	1927	*1926*
Mechanical	1,560,000	1,774,000
Soda	482,000	497,000
Sulphate	575,000	523,000
Sulphite	1,545,000	1,599,000
Total	4,117,000	4,395,000

In 1927 paper production was approximately 9,703,496 tons as compared with 10,000,000 in 1926. The most notable decline was in newsprint where the United States production was 11 per cent less than in the preceding year. This was not due to a decline in the consumption but was largely due to an increase of imports of newsprint into the United States. The estimated total production of wrapping paper showed an increase of 70,000 tons in 1927, due to the increased production of Southern kraft paper. Book paper showed a slight decrease, though in some individual fields there were more favorable tonnage reports. The decline in residential building in 1927 affected the production of felts and building paper, while the production of boards was slightly below that of the previous year. Writing and tissue paper showed increases over 1926. The accompanying table, compiled by the American Paper and Pulp Association gives comparative figures for the two years in the leading departments of paper production.

UNITED STATES PAPER PRODUCTION

	1927	*1926*
Newsprint [a]	1,485,495	1,686,000
Book	1,376,000	1,411,000 [b]
Board	3,577,000	3,650,000 [b]
Wrapping	1,520,000	1,450,000 [b]
Writing	515,000	500,000 [b]
Tissue	310,000	300,000 [b]
Hanging	118,000	110,000 [b]
Cover	26,000	24,285
Felts and building	582,000	600,000 [b]
Absorbent	70,000	65,000
All other	124,000	203,115
Total	9,703,495	10,000,000

[a] Newsprint Service Bureau figures.
[b] Approximate—no census made in 1926.

Paper base stocks valued at $113,632,216 were imported into the United States in 1927, as compared with imports valued at $121,505,691 in 1926. These imports included: pulpwood, classified as rough, 431,251 cords valued at $4,239,933; peeled, 1,074,330 cords valued at $11,013,862; and rossed, 91,216 cords valued at $1,230,550; wood and other pulp mechanically ground, 219,285 tons valued at $5,961,821; sulphite wood pulp, 924,986 tons valued at $58,-

487,471. The latter was of two kinds, bleached and unbleached, and was supplied principally by: Canada, 350,910 tons valued at $23,397,895; Sweden, 346,244 tons, valued at $20,607,401; Finland, 74,701 tons valued at $3,781,986; Norway, 67,675 tons, valued at $5,020,809; Germany, 50,828 tons valued at $3,589,647. Sulphate wood pulp, unbleached (kraft pulp) valued at $20,084,298, as compared with a valuation of $21,193,459 in 1926, came principally from Sweden which supplied 176,444 tons valued at $10,262,487 and from Canada which supplied 138,660 tons valued at $9,029,923; imports of sulphate wood pulp, bleached, totaled 10,789 tons, valued at $708,712, as compared with 16,147 tons, valued at $1,264,028 in 1926. The imports of rags for paper stock totaled 388,107,988 tons, valued at $7,646,864, a decrease from 1926, when the total value was $10,372,689.

Paper and paper manufactures imported in 1927 were valued at $149,365,343 as compared with $139,499,144 in 1926. Of this amount printing paper standard newsprint, 3,973,724,113 pounds, valued at $131,488,784, was the principal item. This can be compared with 3,701,350,149 pounds valued at $123,981,715 in 1926. The largest supply came from Sweden which contributed 3,551,504,615 pounds, valued at $118,731,001; Newfoundland and Labrador followed with 178,501,964 pounds valued at $5,820,991, while Sweden ranked third with 135,323,951 pounds valued at $3,857,801 and Finland fourth with 59,053,098 pounds valued at $1,678,152. The second largest item of paper and manufactures included cigarette paper, cigarette books and covers which totaled 14,685,107 pounds valued at $4,291,637, as compared with 8,276,285 pounds valued at $2,182,583 in 1926. Tissue paper totaled 3,231,208 pounds valued at $1,836,277, which also represented an increase over 1926. Paper boxes, 2,503,330 pounds and valued at $1,446,551, were imported as well as pulp boards in rolls, 60,127,790 pounds, valued at $1,423,111.

The total exports of paper and manufactures from the United States in 1927 amounted in value to $26,975,670, which was but a slight increase over the previous year, and included such items as newsprint paper, 24,657,313 pounds, valued at $1,191,033 as against 38,516,147 pounds valued at $1,849,238 for 1926; and book paper, not coated, 16,040,363 pounds valued at $1,370,932. Other leading exports of paper and manufactures were: wrapping paper, 32,312,413 pounds, valued at $2,256,059; tissue and crêpe paper, 4,894,615 pounds valued at $1,091,531; box board, 43,633,581 pounds valued at $1,351,016; paper board and straw board, other than bristols and bristol board, 38,554,831 pounds with a valuation of $2,072,702; wall board of paper or pulp, 45,890,732 pounds, valued at $1,506,412; paper boxes, 23,660,747 pounds at $1,627,954; and vulcanized fibre sheets, strips, rods, and tubes, 4,285,038 pounds, valued at $1,264,366. See CHEMISTRY, INDUSTRIAL.

PAPUA, pă′pū-ȧ. A territory of the Australian Commonwealth, comprising the southeastern part of the island of New Guinea and all the groups of small islands between 8° and 12° S. latitude and 141° and 155° E. longitude; formerly known as British New Guinea; transferred to the Australian government Sept. 1, 1906. Area, 90,540 square miles, of which about 87,786 are on the island of New Guinea. On June 30, 1926, the population was as follows: Europeans, 1452; Papuans (estimated), 275,000. Port Moresby is the capital and a port of entry. Other ports of entry are Samarai, Daru, and Kulamadau.

A large proportion of the natives are civilized, and many of them are taught in schools maintained by the four Christian missions in the territory. On Dec. 31, 1925, there were 62,981 acres of plantations. The chief crops are coconuts (50,506 acres), rubber (7728 acres); and sisal hemp (3560 acres). The forests contain valuable timber, and the mineral resources, which are considerable, include gold, copper, osmiridium, lead, zinc, tin, and iron. The only minerals exported have been gold, copper, and osmiridium. Indications of petroleum have been found over an area of 1000 square miles, and borings were being continued in 1927 under the auspices of the Australian government. The chief imports are foodstuffs, tobacco, drapery, and hardware; the chief exports are copra, gold, hemp, pearls, and rubber. The exports in 1926 were valued at £685,896 and the imports at £470,774. There is a considerable trade between Australia and Papua, steamship communication being regularly maintained; 129,553 tons entered and cleared in 1926. The local revenue in 1926 was £116,367 and the expenditure, £157,202. The Australian government grants an annual subsidy of £50,000. The territory is administered by a lieutenant-governor appointed by the governor-general of Australia, and an executive and a legislative council, both consisting of official or nominated members. Lieutenant-governor and chief judicial officer in 1927, Sir J. H. P. Murray.

PARAGUAY, păr′ȧ-gwā. An inland republic of South America; bounded on the west and south by Argentina, on the east by Argentina and Brazil, and on the north by Brazil and Bolivia. Capital, Asunción.

AREA AND POPULATION. The estimated area of Paraguay proper, which lies between the Paraguay and Alto Parana rivers, is estimated to be 61,647 square miles; in addition, Paraguay lays claim to a tract between the Paraguay and Pilcomayo rivers known as the Chaco; the ownership of this territory, however, is disputed by Bolivia. In the annual report of the Minister of Finance there was given what was claimed to be the first comprehensive census of population that had been compiled since 1886. This was made by the Department of Agriculture and, according to regions, was as follows:

		Inhabitants
Eastern part:		
Capital		103,750
Central	region	139,706
Paraguari	do.	85,744
Cordillera	do.	101,750
Guaira	do.	115,419
Encarnación	do.	86,705
Misiones	do.	32,189
Sud	do.	39,632
San Pedro	do.	43,580
Concepción	do.	33,846
Alto Parana	do.	9,148
Total eastern part		791,469
Chaco region (approximate):		
Whites		7,500
Indians		30,000
		37,500
Total for the country		828,969

Inasmuch as the total area of Paraguay was approximately 172,000 square miles, this would give a density of population in eastern Paraguay of about 12 inhabitants per square mile; in the Chaco of less than ½, and in the entire country of about 5 per square mile. In Paraguay proper the people are of mixed blood; namely Guarani, Indian, Spanish, and Negro, the first mentioned predominating. The largest cities with their populations, estimated Sept. 30, 1920, are Asunción, the capital, 99,836; Villarrica, 26,000; Concepción, Luque, and Carapegua, each 15,000; and Encarnación, 12,500.

EDUCATION. According to the annual report of the National Board of Education for 1926, 93,334 pupils were enrolled in the schools of the country. Of this number 65,567, or about 70 per cent, concluded the full year's work and took final examinations. The teaching personnel numbered 2096, consisting of 1587 women and 509 men. Only 703 teachers were listed as normal school graduates. In his message to congress on Apr. 1, 1927, President Ayala stated that the expenditures for education in 1926–27 were fixed at 30,393,994 paper pesos, or an increase of 13,504,534 paper pesos over the amount expended during the year 1924–25.

PRODUCTION, ETC. With an area estimated approximately at 172,000 square miles, a fertile soil, and a healthful and agreeable climate, Paraguay is exceptionally well adapted for the cultivation of most of the products of tropical and subtropical lands.

Many such products are being successfully produced and exported on a large scale. The more important among them, from the standpoint of revenue, are cotton, tobacco, rice and yerba mate.

Other agricultural products cultivated on a sufficiently large scale to have a bearing on the country's economic condition are: Sugar cane, maize, manioc, peanuts, and wheat. Of them, sugar is the most important and the one that gives greatest promise of future expansion. Conditions are also exceptionally favorable for the growing of oranges. Quebracho cutting, exporting of quebracho logs, and production of quebracho extract, together constitute another industry of considerable importance to Paraguay.

Few undertakings have proved more profitable in Paraguay than the breeding of livestock. The number of cattle is unofficially estimated at over 5,000,000. Many ranch owners have been for a number of years importing blooded bulls for breeding purposes. As a consequence, the quality of Paraguayan cattle is noticeably improving.

The mineral resources include iron, manganese, and copper, in deposits of considerable extent. In some sections petroleum is found in commercial quantities. Manufacturing is carried on in Paraguay on only a very small scale. In fact, a large part of it consists only of what might be called cottage industries.

COMMERCE. The total value of Paraguayan exports for the year 1926 was 15,497,504 pesos, the largest amount valued at 11,957,427 pesos having been purchased by Argentina, and the second largest, valued at 1,151,955 pesos by the United States. The total value of imports was 12,205,280 pesos, Argentina leading with 4,099,461 pesos and the United States, England, and Germany following closely with 1,938,409, 1,688,521, and 1,273,568 respectively.

FINANCE. The revenues during the fiscal year 1925–26 amounted to 1,354,000 gold pesos and 178,830,000 paper pesos, while expenditures totaled 1,725,000 gold pesos and 161,677,000 paper pesos, according to the annual report of the Minister of Finance. Converting the gold items at the rate of 42.61 paper pesos to one gold peso, revenue and expenditures in paper totaled 236,518,000 and 235,167,000 pesos, respectively, thus leaving a surplus of 1,351,000 paper pesos.

The chief items of revenue and the amounts of each and a comparison with collections in the year 1924–25, follow:

REVENUES OF PARAGUAYAN REPUBLIC

Item	*1924–25* *Paper pesos*	*1925–26* *Paper pesos*
Customs	166,193,291	165,674,956
Internal taxes	53,755,332	55,145,384
Posts and telegrams	5,849,393	6,578,317
Consular fees, sale of land, etc.	5,616,663	5,415,981
Banco Agricola and exchange office	3,510,264	3,695,969
Internal bond issues	123,713	7,000
Total	235,048,656	236,517,607

The public debt of the Republic at the end of the fiscal year 1925–26 amounted to 319,617,000 paper pesos, of which 223,096,000 represented the external debt, 87,368,000 the internal, and 9,153,000 the floating debt.

COMMUNICATIONS. No later figures for communications were available than those for 1924, when 3133 vessels of 229,433 tons entered the port of Asunción and 3106 with a tonnage of 228,366 cleared. The total length of railway mileage was given at 517, the country depending to a great extent upon its navigable rivers, which provide cheap and easy means of transportation.

GOVERNMENT. Executive power is vested in a president who acts through a ministry of five members; and legislative power in a congress of two houses; a senate of 20 members and a house of representatives of 40 members, elected directly by the people. President in 1927, Dr. Eligio Ayala, who assumed office on Aug. 15, 1924.

PARK COLLEGE. A non-sectarian institution of higher learning at Parkville, Mo.; founded in 1875. The enrollment for 1927–28 totaled 523, distributed as follows: seniors, 91; juniors, 68; sophomores, 117; freshmen, 227; special, 7; academy, 13. The faculty numbered 35, of which number, one professor, two associate professors, two instructors, a supervisor of athletics, and an assistant librarian were added during the year. There were 35,000 volumes in the library. The endowment funds of the college amounted to $1,620,000, and the income for the year was as follows: from endowment, $78,000; tuition and fees, $72,600; donations, $39,300; other sources, $21,100. President, Frederick William Hawley, D.D., LL.D.

PARKS, NATIONAL. Lands maintained by the United States government, under acts of Congress, for the preservation of their scenic or other unique features, and set apart for the use of tourists and visitors. The 10-years' period completed by the National Park Service in April, 1927, was mainly one of organization and coördination, while it was proposed that the next decade, which began with the tourist season of that year, should be devoted to the service of the public primarily along recreational and educational lines. The volume of travel to the national parks and monuments during 1927 was the largest that was ever experienced; it is shown in the accompanying table. Appropriations for the national parks and monuments for the fiscal year amounted to $3,951,183.57, and expenditures to $3,923,386.30, resulting in a saving of $27,797.37 for return to the Federal Treasury.

The following tables from the report of the Director of the National Park Service give the number of visitors to the national parks and monuments for the fiscal year 1927:

Name of park	*Number of visitors*
Hot Springs	[a]181,523
Yellowstone	200,825
Sequoia	100,684
Yosemite	490,430
General Grant	47,996
Mount Ranier	200,051
Crater Lake	82,354
Platt	[a]294,954
Wind Cave	81,023
Sullys Hill	221,682
Mesa Verde	11,915
Glacier	41,745
Rocky Mountain	[a]229,862
Hawaii	[a]37,551
Lassen Volcanic	20,089
Mount McKinley	651
Grand Canyon	162,356
Lafayette	123,699
Zion	24,303
Total	2,354,643

[a] Estimated.

Name of monument [b]	*Number of visitors*
Aztec Ruin (New Mexico)	7,298
Capulin Mountain (New Mexico)	12,617
Carlsbad Cave (New Mexico)	26,486
Casa Grande (Arizona)	28,818
Chaco Canyon (New Mexico)	1,500
Colorado (Colorado)	[a]9,500
Craters of the Moon (Idaho)	5,771
Devil's Tower (Wyoming)	10,400
El Morro (New Mexico)	5,178
Gran Quivira (New Mexico)	2,034
Hovenweep (Utah-Colorado)	[a]263
Katmai (Alaska)	.....
Montezuma Castle (Arizona)	15,400
Muir Wood (California)	101,514
Natural Bridges (Utah)	82
Navajo (Arizona)	260
Papago Saguare (Arizona)	[a]60,540
Petrified Forest (Arizona)	61,761
Pinnacles (California)	11,265
Pipe Spring (Arizona)	16,853
Rainbow Bridge (Utah)	300
Scott's Bluff (Nebraska)	[a]80,000
Sitka (Alaska)	3,000
Tumacacori (Arizona)	16,761
Verendrye (North Dakota)	[a]15,000
Wupatki (Arizona)	[a]450
Yucca House (Colorado)	196
Total	448,197

[a] Estimated.
[b] No records for other national monuments.

Through boundary adjustments which increased the area of the Hawaii Park from 186 to 242 square miles and Grand Canyon National Park from 958 to 1009 square miles, the total area of the park system became 11,817 square miles. Progress was made during the year in the plans for the establishment of the Great Smoky Mountains National Park in Tennessee and North Carolina, and the Shenandoah National Park in Virginia. Of the total of $5,000,000 already pledged towards the acquisition of land for the former, an appropriation of $2,000,000 was authorized by the State of North Carolina and $1,500,000 by the State of Tennessee contingent upon the raising of the entire sum necessary to purchase the total necessary acreage. Tennessee also purchased 76,507 acres within the proposed park area. The State of Virginia made considerable progress in surveying and appraising the area within the boundaries of the proposed Shenandoah Park. With the consumption of plans whereby the private and State lands within the Bryce Canyon National Monument, Utah, will pass to the Federal government and the area becomes Utah National Park the area of the national park system will be further increased. The service reports various gifts of land, or funds with which to purchase land, in Lafayette, Zion and Sequoia National Parks, and a considerable total which was donated for museum construction and equipment, archæological research, roadside clean-up, fish hatchery developments, and other purposes.

The American Association of Museums and a number of scientific organizations coöperated during the year in furthering educational work in the national parks, the museum association securing the appropriation of approximately $10,000 from the Laura Spelman Rockefeller Memorial for the erection and equipment of an observation station and branch museum at the Grand Canyon National Park. The Hawaii Volcano Research Association donated the new Uwekahuna Observatory and branch museum at the Kilauea Crater in the Hawaii National Park.

The National Park Service participated in two important conferences in 1926 and 1927: The Ninth National Park Conference meeting in Washington in November, 1926, was attended by the superintendents of all the major national parks, general field engineering, landscape, and education officers, and at it measures were adopted for simplifying and coördinating the work of the Bureau; the Pan-Pacific Conference on Education, Reclamation, Rehabilitation, and Recreation, which met in Honolulu in April, 1927, devoted considerable space and attention to exhibits relating to the work and activities of the Bureau.

Considerable interest was evinced in Yellowstone National Park during the summer as the result of the visit of President and Mrs. Coolidge and their son during August, and extensive improvements in camping ground facilities, roads and hotel accommodations for visitors were effected. Following upon the opening of the All-Year Highway to Yosemite National Park in 1926 such unprecedented travel resulted that the traffic situation revealed the necessity for rapid expansion of facilities. An area of approximately 7 square miles in an outlying section of Yosemite was set aside as a perpetual wild-life reserve, to be protected against trespass and maintained in a natural state for scientific study in the future.

PATENTS. See United States.

PAVEMENTS. See Roads and Pavements.

PAZ y MELIA, Antonio. Spanish archivist, palæographer, and scholar, died in Madrid. He was born in Talavera de la Reina in 1842, and in 1869 he was attached to the staff of the Biblioteca Nacional, in Madrid, where he served for 40 years as chief of the department of manuscripts and assistant national librarian, until his retirement. He served also as private librarian in the great ducal houses of Alba and Medinaceli, in that of Alba for more than half a century. For Medinaceli he helped in publishing two large and important volumes entitled *Series de los más importantes documentos del Archivo y Biblioteca del excelentisimo señor Duque de Medinaceli.* For the house of Alba, he helped the late duchess in publishing many of the Columbus documents and others of historical importance belonging in the Alba archives.

PEABODY, FRANCIS WELD. An American physician, died at Cambridge, Mass., October 13. He was born in Cambridge, Mass., on Nov. 24, 1881. He was educated at Harvard and received his medical degree in 1907, and in the following year was appointed assistant resident physician of the Johns Hopkins Hospital. In 1912 he was resident physician, and from 1915 physician of the Peter Bent Brigham Hospital, Boston. In 1926 he became a member of the board of directors of the Rockefeller Institute.

PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY AND ETHNOLOGY. This museum is the anthropological section of the Harvard University Museum; it was founded by George Peabody in 1866. In addition to maintaining collections, it has laboratories for research in the various branches of archæology, and has at its disposal the income from various funds, permitting special research in the field and the care and increase of the collections of the museum.

There was a notable increase in the number of students making use of the collections in 1927 and in the number of visitors. The library contained nearly 20,000 books and pamphlets, including nearly all of the current anthropological publications of the world.

The activities of the Peabody Museum during the year 1927 were numerous and varied. Prof. A. M. Tozzer and Dr. H. J. Spinden continued their researches in connection with the old civilization of Middle America, the results of their work to appear as Volume VII of the Museum *Memoirs*. S. J. Guernsey's report on the work of the Museum in northeastern Arizona in 1920–23 was nearly ready for publication at the end of the year. C. B. Cosgrove completed the exploration of Swart's Ranch Pueblo in New Mexico which was begun in 1924. Dr. Charles Peabody, Curator of European Archæology, carried on investigations of archæological sites in France and forwarded a collection of palæolithic material secured by him near Clermont. C. S. Coon, under the direction of Dr. F. A. Hooton, Curator of Sematology, spent nine months in the study of the Berbers of Morocco. W. B. Cline spent eight months in archæological study of the Nile Valley. Dr. George D. Williams carried on investigations among the mixed and full blood Maya in the neighborhood of Chichen Itzá and Mérida.

Several valuable collections were presented to the Museum during the year, including an unusually fine one from the little known Jee-Anim and Marind-Anim tribes of southern Dutch Guiana brought together by Patrick T. L. Putnam during his explorations in that country. Another noteworthy collection was received from Mrs. Charles C. Goodwin which her father Captain William D. Phelps obtained in California in the summer of 1841. An excellent lot of old material from the natives of the Andaman Islands in the Bay of Bengal was also obtained which illustrates in an unusually complete manner the customs of this interesting people. See ANTHROPOLOGY.

PEACE AND PEACE MOVEMENTS. THE BURTON RESOLUTION. Congressman Theodore E. Burton at the opening of the Seventieth U. S. Congress introduced a resolution declaring it to be the policy of the United States to prohibit the exportation of arms, munitions or implements of war to any country which engages in aggressive warfare against any other country in violation of a treaty, convention, or other agreement to resort to arbitration or other peaceful means for the settlement of international controversies. According to its terms, whenever the President determines that any country has violated any such treaty, convention, or agreement by engaging in aggressive warfare against any other country, and makes proclamation thereof, it shall be unlawful, until otherwise proclaimed by the President, or provided by act of Congress, to export any arms, munitions or implements of war from any place in the United States or any possession thereof to such country, or to any other country if the ultimate destination of such arms, munitions or implements of war is the country so violating any such treaty, convention or agreement. Whoever exports any arms, munitions or implements of war in violation of this resolution, shall, upon conviction, be punished by a fine not exceeding $10,000 or by imprisonment not exceeding two years or both. It was made the duty of the Secretary of the Treasury to report any violation to the United States District Attorney for the district wherein the violation is alleged to have been committed.

CAPPER RESOLUTION. Likewise at the opening session of the Senate Senator Capper of Kansas introduced a joint resolution providing for the renunciation of war as an instrument of national policy and calling for the settlement of international disputes by arbitration or conciliation. The resolution was looked upon by many as the most important step in international relations initiated by a member of Congress since the World War. The full text of the resolution follows:

Whereas the Congress of the United States on August 29, 1916, solemnly declared it "to be the policy of the United States to adjust and settle its international disputes through mediation or arbitration to the end that war may be honorably avoided": and

Whereas Aristide Briand, Minister of Foreign Affairs of the French Republic, on April 6, 1927, publicly declared to the people of the United States that "France *would be willing to subscribe publicly with the United* States to any mutual engagement tending to outlaw war, to use an American expression, as between these two countries" and proposed that the two countries enter into an engagement providing for the "renunciation of war as an instrument of national policy"; and

Whereas there has been strong expression of opinion from the people and the press of the United States in favor of suitable action by our government to give effect to the proposal of Monsieur Briand; and

Whereas the present arbitration treaty between the United States and France providing for the submission to arbitration of differences of a legal nature arising between them will terminate on February 27, 1928; and

Whereas the United States being desirous of securing peaceful settlement of international disputes and the general renunciation of war as an instrument of policy should not be under obligation to furnish protection for such of its nationals as aid or abet the breach of similar agreements between the other nations:

Now, therefore, be it *Resolved* by the Senate and House of Representatives of the United States of Amer-

> ica in Congress assembled, That it be declared to be the policy of the United States
>
> I. By treaty with France and other like-minded nations formally to renounce war as an instrument of public policy and to adjust and settle its international disputes by mediation, arbitration and conciliation; and
>
> II. By formal declaration to accept the definition of aggressor nation as one which, having agreed to submit international differences to conciliation, arbitration or judicial settlement, begins hostilities without having done so; and
>
> III. By treaty with France and other like-minded nations to declare that the nationals of the contracting governments should not be protected by their governments in giving aid and comfort to an aggressor nation; and
>
> Be it further *Resolved*, that the President be requested to enter into negotiations with France and other like-minded nations for the purpose of concluding treaties with such nations, in furtherance of the declared policy of the United States.

In presenting the resolution Senator Capper said he had done so "to test the sincerity of our professions that America desires world peace. We have talked much about the desirability of peace, but have done little to advance the cause which the people have so much at heart. Nothing further is to be gained by repeating pious platitudes, by uttering high-sounding moral generalities or by professing to be devoted to international peace and opposed to war. The resolution is not a radical or extreme statement of American policy. It has the merit of putting into plain and explicit terms the desire of the American people to advance the cause of peace. It omits meaningless moral generalities concerning the part this nation shall play in the world effort to bring about an area of international understanding and, therefore, peace.

"If M. Briand's proposal be accepted as between the United States and France and offers are made to extend it at once to Great Britain, to Germany, to Japan, and to Italy, the chance of future wars would be reduced to a minimum so long as the other contracting nations keep the faith. As it is obvious that they themselves would not go to war with each other, and by refusing jointly and severally to aid an aggressor nation they would thereby make any war between two lesser nations virtually a local affair.

"Finally there is the desirability and importance of having the United States resume the position of emphatic leadership in all that promotes international peace and understanding, a leadership it took and held under McKinley and Hay, Roosevelt and Root, and Taft and Knox. The adoption of this resolution would place our own government in the position of offering a practicable plan to any other nation of the same mind to put war outside the pale as between itself and the United States.

"Within the next year, in February, June, and August, the treaties of arbitration with France, Great Britain and Japan expire by their own terms. The adoption of this resolution opens the way for treaties in their place renouncing war between these important nations. Here is a vital matter. We have here a great opportunity to live up to our highest American traditions in this resolution to renounce war. We should make the most of it."

VOTING ON WAR. The Hon. Alanson B. Houghton, American Ambassador to the Court of St. James's, in receiving an honorary degree from Harvard in June, advanced the idea of putting the question of going to war, and the ratification of an international conference agreement by nations not to resort to war against one another for a century, to a vote of the people.

"The time is at hand," said Mr. Houghton in his address, "when a new experiment in democratic control must be made. Those peoples who have demonstrated their competence to govern themselves within their own national frontiers must assume direct responsibility for their relations with each other. Our governments have shown themselves unable to protect us against war. They continue to act along well-defined grooves, and in accordance with the dictates of a political theory which exalts nationalism and relies frankly upon the use of force, when necessary, to attain these ends.

"If the danger of war is to be lessened, a sufficient measure of control, it seems to me, can be obtained only when the self-governing peoples definitely and constitutionally take the decision into their own hands."

Mr. Houghton's propositions, culminating in a dramatic international referendum day, he stated as follows:

> First, if so great a political experiment is to be tried, it must be frankly an international experiment. It can not be safely or expediently entered upon by one nation alone. Obviously the experiment would have a greater chance of success if confined at the beginning to those peoples who are most alike in race and ancestry, who possess roughly the same degree of economic and political and educational advancement, accept the same standards of life, respond to the same appeals, and react to the same emotions—in other words, the great self-governing peoples.
>
> Obviously, too, such a proposition can only be brought before them by the consent and with the cooperation of their respective governments. A conference at which each is represented would therefore be a necessary preliminary. Second, the object of such a conference would be, of course, to determine whether each of these governments is prepared by proper legislative action to enable its people to accept or reject a proposition whereby a declaration of war against the other peoples in the group can be made only after the question has received the affirmative sanction of a majority of its qualified electors; and, following this, to enter into an agreement whereby in return for reciprocal pledges, each shall agree not to attack the others for a term of, say, one hundred years.
>
> If, as a result of such a conference, these two propositions can be formulated and accepted, a day should be fixed on which all the peoples so pledged would be given an opportunity to vote for or against ratification, so that by the simultaneous action of the individual electors, in all the great nations involved the full responsibility for that agreement would be dramatically brought home to each, and each be made aware that the issue of peace or war between them will be thereafter in their own hands and control. Into such a conference, it seems to me, the plain people of America would be eager to enter.

INTERNATIONAL GOOD WILL. American coöperation for international good will and universal peace was the objective of the World Alliance for International Friendship through the Churches, an organization which endeavors to enlist, in practical effort, men and women in all parts of the world who desire to assist in the ultimate establishment of universal peace through the development of arbitral, conciliatory, and judicial methods of composing racial and international misunderstandings. Organized in the summer of 1914, the outbreak of the World War made it necessary to delay active efforts during that period.

With the signing of the Armistice in 1918, the work was renewed, and has been prosecuted vigorously from that time. In 1927, 29 active councils had been established in principal nations. It welcomes to its membership, men and women of all religious faiths and political affiliations.

AMERICAN PEACE SOCIETY (Secretary, Arthur D. Call, Colorado Bldg., Washington, D. C.) held its 99th Annual Meeting in Washington, D. C., May 7th, the Hon. Theodore E. Burton presiding. Arrangements were begun for the celebration of the centenary of the society, in May, 1928, in Cleveland, Ohio, at which time the general topic was to be "Our Country's Contribution to the Peace of the World." A history of the Society was to be prepared as a feature and President Coolidge was to be the Honorary Chairman of the Committee of Arrangements. An appeal for an endowment fund of $50,000 was made during the year. What is known as the "Permanent Peace Fund" established in memory of the Rev. George C. Beckwith, D.D., a former secretary, held its annual meeting in May. Its net income (amounting in 1926–27 to $7,206.96) is given to the American Peace Society.

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM. Jane Addams was the international president and Mrs. William I. Hull, Swarthmore, Pa, president of the United States Branch. At its annual meeting in Cleveland, Ohio, May 1, a series of proposals as to policy were adopted. These dealt first with education and secondly with international organization. Under the latter head, there were declarations about the League of Nations, the Outlawry of War, and Arbitration, all three being endorsed in varying degrees.

WOMEN'S PEACE UNION (headquarters, 39 Pearl St., New York) continued its campaign for the Frazier amendment to outlaw war. To this end it conducted a 15 days' intensive campaign in North Dakota. Hearings on the amendment were held in January, before a subcommittee of the Senate Committee on Judiciary.

THE WORLD ALLIANCE FOR PROMOTING INTERNATIONAL FRIENDSHIP THROUGH THE CHURCHES (The Hon. Sir Willoughby H. Dickinson, Honorary Secretary, 41 Westminster Street, S. W. I., London. See YEAR BOOK, 1926) held a conference of its Management and Administrative Committees at Constance, Switzerland, July 27–29, attended by delegates from the United States, Great Britain, Switzerland, Sweden, France, Germany, Greece, Lithuania, Holland, Esthonia, Austria, Poland, Norway, Finland, Czechoslovakia, Canada, and China. The Dean of Worcester (England) presided. The Education Commission recommended (1) that the chief language used in the Report should be English; that a speaker of special qualifications should be invited to speak on this subject at the conference in Prague in 1928; that the American Council of the Alliance be asked to appoint a Committee on Textbooks and that their report should be published with that of the commission. The members of the committee were impressed by the value of the Memorandum on *La Paix et les Enfants* submitted to them by Madame Jozequel and by the skill with which it had been drawn up. Its early publication was recommended.

The American Branch, which holds its annual meeting on Armistice Day, conducts forums and public meetings through sundry state and local branches.

THE NATIONAL COUNCIL FOR THE PREVENTION OF WAR (Rennie Smith, Directing Secretary, 39 Victoria St., London, S. W.) is a federation of bodies that are working for peace and against war. It seeks to coördinate, in the first place, every organization whose primary object is the prevention of war or which is working, as an organization, for peace among the nations. The Council is not an organization limited to one point of view. It includes organized bodies of divergent opinions, but which are united in their hatred of war and their desire to establish a peaceful civilization.

THE NATIONAL COUNCIL FOR PREVENTION OF WAR (Frederick J. Libby, Secretary, Washington, D. C.) celebrated the sixth anniversary of its organization in September as the result of a meeting called by Miss Christina Merriman of the Foreign Policy Association. As a clearing house for a wide constituency of organizations and individuals, the council has published and sold large editions of significant posters, pamphlets, and books.

WOMEN'S INTERNATIONAL LEAGUE (International President, Jane Addams, Chicago; Headquarters U. S. Section, 522 17th Street N. W., Washington, D. C.). The outstanding work during the year concerned arbitration and the action taken at the time of the Mexican crisis. In the fall of 1926 the organization asked Professor Francis B. Sayre of Harvard University to prepare a model arbitration treaty which could be urged on the government to have signed between the United States and all other nations. It was the first one issued in the United States and it was published months before the Shotwell or Bok treaties, which were given such wide publicity in April, following M. Briand's proposal. During the summer petitions calling upon the President to negotiate treaties with all countries, beginning with France and Great Britain, were circulated, and approximately 20,000 signatures were secured. The League coöperated with other peace organizations in a nation-wide effort to prevent the use of armed forces in the Mexican difficulties. Thousand of telegrams and letters sent to the Senate and the White House were the result of the action and organization of the peace groups.

The Nobel Peace Prize for 1927 was awarded at Oslo, Norway, on December 10th to Professor Ludwig Quidde, of Germany, and Professor Ferdinand Buisson of Paris, two outstanding advocates of pacifism. See NOBEL PRIZES. See also ARBITRATION, INTERNATIONAL.

PEACH MOTH, ORIENTAL. See ENTOMOLOGY, ECONOMIC.

PEAY, AUSTIN. Governor of Tennessee, died at Nashville, Tenn., on October 2. Born in Christian County, Ky., June 1, 1870, he was educated in Washington and Lee University, Lexington, Ky. He studied law, was admitted to the bar in 1895 and commenced practice in Charlesville, Tenn. He was elected a member of the Tennessee House of Representatives in 1901, and was chosen chairman of the Democratic State Committee in 1905. First elected as governor in 1922 he at once began a revision of the tax system and the development of highways throughout the State. He was the centre of political storms during his first administration, but won his second nomination by a large majority without making a speaking campaign. In defying the third term precedent he made a speaking campaign, against bitter criticism, but was nominated by a small majority. Governor Peay signed the bill passed in 1925 by the Tennessee Legislature which forbade the teaching of the theory of evolution in any school which was supported by the public funds of the State.

PELLAGRA. The catastrophe of the Mississippi inundation incidentally called attention to the extensive incidence of pellagra in the flooded area. In this region during the year 1924 the number of cases reported was about 20,000 with 1020 deaths and it is estimated that for 1927 the incidence will be from 45,000 to 50,000 with deaths from 2300 to 2500. The United States Public Health Service devoted to this subject its *Report 42* (September 2 issue), editorial comment on which appears in the *Journal of the American Medical Association* for October 1. The increase was anticipated because under economic stress the poorer classes were forced to subsist largely on a diet consisting chiefly of meal, pork and molasses and it was under this regimen that the disease was most apt to flourish. A vitamin known provisionally as PP is largely sufficient to prevent the development of pellagra and is to be found chiefly in lean meat, fowl, fish, yolks of egg, milk, vegetables and fruit; while the richness in this vitamin of dried and killed yeast makes it possible to prevent and cure the disease by a ration of this substance. According to economists the prevalence of pellagra in this area was the direct consequence of growing only cotton, ignoring dairy, poultry and truck farm crops, the planters contenting themselves with food obtained from the stores which was poor in vitamin PP. See FOOD AND NUTRITION, under *Nutrition Investigations.*

PENANG, pē-năng′. One of the Straits Settlements (q.v.).

PENDL, EMANUEL. Austrian sculptor, died at Vienna, on September 29. He was born in Meran, Austria, on Feb. 23, 1845, and studied under his father at the Academy of Venice and in Vienna. He was a friend of the late Emperor Francis Joseph, of whom he made many huge equestrian statues. His massive figure of Justice in the Palace of Justice, Vienna, was almost destroyed beyond repair by rioters in July 1927. His busts of prominent people are exhibited in several cities of his native land.

PENNSYLVANIA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 8,720,017. The estimated population on July 1, 1927, was 9,730,000. The capital is Harrisburg.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	3,090,000	5,085,000[a]	$68,592,000
	1926	2,936,000	3,845,000[a]	70,995,000
Corn	1927	1,270,000	50,165,000	45,650,000
	1926	1,394,000	57,154,000	44,580,000
Potatoes	1927	220,000	26,400,000	31,680,000
	1926	198,000	22,176,000	37,699,000
Wheat, winter	1927	1,090,000	20,165,000	25,610,000
	1926	1,170,000	23,400,000	30,186,000
Oats	1927	1,100,000	39,600,000	21,384,000
	1926	1,111,000	35,552,000	17,420,000
Tobacco	1927	33,000	44,880,000[b]	5,834,000
	1926	33,000	43,560,000[b]	4,574,000
Buckwheat	1927	210,000	4,935,000	4,195,000
	1926	190,000	3,610,000	3,213,000
Rye	1927	78,000	1,326,000	1,392,000
	1926	93,000	1,488,000	1,443,000
Apples	1927	....	6,800,000	8,820,000
	1926	....	17,000,000	12,960,000

[a] tons, [b] pounds.

MINERAL PRODUCTION. The State was the foremost in the Union in 1925 as a mineral producer, and yielded 17.40 per cent of the entire mineral production of the country, in point of value. It led in the production of bituminous coal, was the sole producer of anthracite, and led in coke, pig iron and cement. There were produced in 1926, 84,437,452 short tons of anthracite, as against 61,817,149 tons in 1925; in value, $474,164,252 in 1926 and in 1925, $327,664,512. Production of bituminous coal in 1926 was 153,041,638 short tons, in 1925, 136,928,019 tons. The value of this product, for 1926, was $325,618,000; for 1925 it was $287,899,000. The number of bituminous mines operating on a commercial scale in 1926 was 1963; in 1925, 1974. (See COAL.) Of coke there were produced in 1926 in by-product ovens 11,200,624 short tons, as against 9,853,262 tons in 1925; in value, $48,722,935 in 1926 and in 1925, $34,518,863. In addition the beehive coke ovens yielded 9,574,341 short tons of coke in 1925, valued at $41,875,615; while an exact total of the beehive product for 1926 was not available, the total quantity fell somewhat below that for 1925. (See COKE.) The iron ore production of the State continued relatively slight, its mines shipping in 1926, 1,088,634 and in 1925, 917,255 long tons; in value, $2,483,056 for 1926 and for 1925, $2,149,800. Blast furnaces of the State, however, produced in 1926 and shipped 13,142,528 long tons of pig iron, as against 12,537,809 tons in 1925; in value, $263,238,184 in 1926 and in 1925, $258,140,674. Cement production was 42,805,694 barrels in 1926; in 1925, 42,346,830 barrels. Cement shipments attained a value of $70,437,218 for 1926; for 1925, of $72,870,981. Clay products, in 1925, the latest year of available statistics, totaled $54,369,402; in 1924, $52,167,366. Natural gas was produced to the quantity of 101,632,000 M cubic feet in 1925, and of 105,863,000 M cubic feet in 1924; in value, $47,098,000 in 1925 and in 1924, $45,546,000. Petroleum production was larger than in the years immediately previous, attaining in 1926, 8,942,000 barrels, as against 8,097,000 barrels in 1925; in value, $34,000,000 in 1926 and in 1925, $29,310,000. The production of ferro-alloys, a large and growing industry, attained a total quantity of 300,277 long tons in 1925, as compared with 260,623 tons in 1924; in value, $29,143,978 in 1925 and in 1924, $24,618,000. Much lime was produced, in 1926 according to estimates, 828,000 short tons, as against 794,951 tons in 1925, in value, $6,615,000 in 1926 and in 1925, $6,425,675. The State held first rank as a producer of slate, its primary sales of slate totaling $5,413,177 in 1926; in 1925, $5,885,179. It produced also large quantities of stone, sand, and gravel. The total value of the mineral productions in 1925, duplications eliminated, was $867,196,142; in 1924, $1,011,630,879.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending May 31, 1926, were $74,838,315; their rate per capita was $7.85. They included $22,310,088 apportioned for education. Totals not included in the above, of $3,040,478 in interest and of $44,857,959 in permanent improvement outlays, brought the aggregate of State expenditure to $122,736,750. Of this, $52,833,387 was for highways; $10,887,071 being for maintenance and $41,946,-

316 for construction. Inter-departmental payments were $581,770 of all expenditure.

Revenue receipts were $124,835,966; or per capita, $13.10. Of their total, property and special taxes yielded 40.3 per cent, attaining a per capita rate of $5.28. Earnings of departments and compensation paid the State for officials' services furnished 6.9 per cent of revenue; 39.7 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles and from a gasoline sales tax.

Net State indebtedness on May 31, 1926, was $83,710,906, or $8.78 per capita. Property subject to ad valorem taxation not being taxed in 1926, no assessed valuation thereon was reported.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927 was 11,330.97. There were built in 1927, as reported by the *Railway Age*, 2.82 miles of first, 5.48 of second and 1.47 of fourth or other track.

EDUCATION. The amount of State subsidies to common schools in 1926–1927 was characterized by Education Superintendent Keith in the *Journal* of the National Education Association as the largest granted in the history of the State. A fund was established to help distressed third and fourth class school districts to rebuild destroyed school buildings or carry out construction in connection with consolidation plans. State research into school conditions and needs was inaugurated. The school population of the State in the scholastic year 1925–1926, including all children between the ages of six and 16 years, was reckoned at 1,919,196. There were enrolled in the public schools 1,849,163 pupils, of whom 1,581,767 were in the elementary schools and 267,396 in the high schools. The expenditures for public school education totaled $185,408,335. Salaries of teachers averaged $1451.

CHARITIES AND CORRECTIONS. The State Department of Welfare as organized in 1927 had at its head as Secretary of Welfare, Mrs. E. S. H. McCauley. It included subdivisions charged with child welfare, mental health, the study and treatment of criminals and the assistance of the blind. It had control over 10 state hospitals at Ashland, Blossburg, Coaldale, Connellsville, Hazleton, Shenandoah, Nanticoke, Philipsburg, Scranton and Shamokin; eight mental hospitals, at Allentown, Danville, Farview, Harrisburg, Norristown, Torrance, Warren and Wernersville; Laurelton State village, Pennhurst State School and Polk State School, for mental defectives; Selinsgrove State Colony for epileptics; 3 correctional institutions, the Pennsylvania Industrial Reformatory at Huntington, Penn Training School at Morganza and State Industrial Home for Women at Moncy; and the 3 State penitentiaries. According to the statistics of the U. S. Department of Commerce patients in the State hospitals for mental diseases on Jan. 1, 1927, numbered 12,118, admittances in 1926 having been 2092; inmates of the penal and reformatory State institutions on Jan. 1, 1927, numbered 4170, admittances in 1926 having been 1531. The City of Philadelphia, December 27, dedicated a new House of Correction at Holmesburg, costing $1,500,000 and having a capacity of 575 inmates.

LEGISLATION. The State General Assembly convened in regular biennial session January 4, and adjourned April 15. Governor Fisher in his inaugural address opposed the embarkation of the State in new undertakings and asserted the need of proceeding with highway development, of a budget system and of amendment of the election laws. Bills were enacted permitting the payment of not more than $4500 a mile for improved township roads under the reward plan; providing for a uniform law on extradition; regulating the issue of building and loan notes; forbidding the marriage of a person of either sex of an age less than 16 years; requiring the registration of engineers and surveyors at an original fee cost of $20 and a yearly renewal cost of $1. The Legislature passed, but the governor vetoed, a measure designed to remove double jeopardy from persons liable at once under the Federal and under the State criminal laws: this measure would have rendered it impossible to prosecute criminally in a State court a defendant who had previously been prosecuted for the same act or acts in a United States court. Appropriations for building construction to a total amount of $12,916,500 were passed. Of this amount the largest item, $2,108,500, was for insane hospitals, and $2,000,000 was for normal schools. While no extensive action was taken with regard to penal legislation, a crime commission was created, to study the subject and to report to a later session. A constitutional amendment was passed, to increase the borrowing power of the city of Philadelphia, so that the city might borrow not merely up to 10 but up to 14 per cent of its assessed property valuation, and similarly increasing the borrowing power of counties to 10 per cent, from 7 per cent; the basis of valuation was at the same time changed from "taxable property" to "taxable realty." Passed in the Legislature, the amendment awaited ratification by popular vote in 1928.

Preliminary to popular ratification in 1928 also, was the passage by the Legislature, as by that of 1925, of a proposal to issue $50,000,000 of State bonds for the purpose of highway construction. There was passed a law, designed to enable the city of Pittsburgh to enforce zoning regulations with regard to buildings, and granting to second class cities the power to regulate height, number, stories and sizes of buildings and to restrict buildings in such areas as might be designated, with regard to their purpose. Many measures to correct election conditions were offered, both in the realm of the election laws and in that of the corrupt practice act. Governor Fisher recommended various changes in the latter, but finally as a substitute, a resolution to create a commission to study the election situation and report to the subsequent session was passed. A bill was also passed to permit the use of voting machines in localities that should so choose. No action was taken as to ratifying the tri-State Delaware River water treaty. Provision was made for State mothers' aid, by a bill carrying an appropriation of $2,750,000 for this purpose. A banking enactment was sent to the governor, which in the case of insolvency of a private bank rendered the depositors preferred creditors.

POLITICAL AND OTHER EVENTS. The contest of the election of W. S. Vare to the United States Senate in November of 1926, brought by the defeated Democratic candidate, William B. Wilson, led to prolonged court proceedings for the preservation and recount of the ballots. According to the State law these ballots were to be destroyed September 20. Wilson, acting in concert with the Reed Senate Committee, charged vote frauds in the cities of Philadelphia, Pittsburgh, Scranton, and Wilkes-Barre, and the committee obtained possession of ballots from Philadelphia, and from Alleghany County. Vare finally declared his readiness to coöperate in securing the ballots for the Senate recount, provided that the ballots of all the counties be secured. Court orders issued by the middle of September directed the prothonotaries of all or many of the counties to preserve the ballot boxes for disposal by the Senate. At the November elections the regular Republican candidate for Mayor of Philadelphia, Harry A. Mackey, and all Republican candidates for the Council were elected.

In the Pittsburgh district, the strike of the union bituminous coal miners, begun as in other States on April 1, was not terminated in October. Leading coal mining companies were not disposed to grant terms similar to those under which the strike ended elsewhere, and continued the struggle. The Pittsburgh Coal Company brought action in the Federal District Court September 9 against the United Mine Workers, asking award of damages in the sum of $1,500,000 and an injunction against interference with operation, which the company intended to carry on under non-union conditions. Federal Judge Schoonmaker granted an injunction to the Pittsburgh Terminal Coal Corporation October 11 forbidding many union activities against the non-union operation of the company, and ordered striking miners to vacate company-owned houses at once. The United Mine Workers made arrangements in October for the temporary housing of 500 striking miners evicted by this company as well as a like number evicted by the Jones and Laughlin Steel Corporation and over a thousand others whose evictions were pending. (See STRIKES AND LOCKOUTS.) On November 14 the explosion of a 5,000,000-cubic-foot gas tank of the Equitable Gas Company in the North Side of Pittsburgh occasioned a serious disaster. Some 28 persons were killed, hundreds injured and houses of an estimated value of $5,000,000 destroyed. A new Point Bridge, replacing an older structure spanning the Monongahela River at Pittsburgh and costing $2,079,000, was opened for traffic June 30. The State Supreme Court on June 24 declared professional Sunday baseball unlawful, as a worldly employment forbidden under the terms of an act of 1794.

OFFICERS. Governor, John S. Fisher; Lieutenant-Governor, Arthur H. James; Secretary of State, Charles Johnson; Treasurer, Samuel S. Lewis; Auditor-General, Edward Martin; Attorney-General, Thomas J. Baldridge; Superintendent of Public Instruction, John A. H. Keith.

JUDICIARY. Supreme Court: Chief Justice, Robert von Moschzisker; Judges; Robert S. Frazer, Emory A. Walling, Alexander Simpson, Jr., John W. Kephart, Sylvester B. Sadler, William I. Schaffer.

PENNSYLVANIA, UNIVERSITY OF. A non-sectarian institution of higher education, at Philadelphia, Pa., primarily for men, but with certain courses open to women; founded in 1740. It is composed of the College of Arts and Science; the Towne Scientific School (engineering and chemistry); the Moore School of Electrical Engineering; the Wharton School of Finance and Commerce; the school of fine arts (architecture, fine arts, music); the school of education; the graduate school and the professional schools of medicine, graduate medicine, law, dentistry, veterinary medicine, and hygiene and public health. The 1927 autumn enrollment was 14,962, including all schools and departments. Of those enrolled 8599 were candidates for degrees; 2750 were candidates for certificates and 3603 were partial students and auditors. The enrollment of the 1927 summer session was 2315. The faculty numbered 1306, an increase of 41 over 1926. The library contained 635,070 bound volumes and 55,000 pamphlets. The productive funds amounted to $12,204,000, and the income for the year to $622,000. New additions to the University's buildings during the year included: a new graduate school hospital; an indoor stadium, seating 10,000; a new gymnasium (including swimming pool); and an auditorium, seating 2500.

Among the various gifts and subscriptions received through the University of Pennsylvania Fund were the following: $250,000 from the Carnegie Foundation, for research in medicine; $500,000 from Mr. and Mrs. Henry Phipps for the endowment of the Phipps Institute; $100,000 from Eldridge R. Johnson for the University Museum Building and Endowment Fund; $100,000 from Mrs. Mary A. Sharpe for the endowment of the Sharpe Memorial Gallery Fund in the Museum. President and Provost, Josiah H. Penniman, Ph.D., Litt.D., LL.D. See ARCHÆOLOGY.

PENNSYLVANIA ACADEMY. See ART EXHIBITIONS.

PENNSYLVANIA STATE COLLEGE. A non-sectarian, coeducational institution of higher education, at State College, Pa.; founded in 1855. On Sept. 15, 1927, the enrollment totaled 3602, distributed as follows: agriculture, 531; chemistry, 325; education, 496; engineering, 1158; liberal arts, 750; mines and metallurgy, 177; graduate school, 135; specials, etc., 30. There were 2495 students registered in the 1927 summer session. The faculty numbered 525, including the home economics extension staff. The productive funds of the College amounted to $517,000, and the income for the year to $3,141,368.89. The library contained 103,212 volumes. A large storage building was completed in October, 1927, and work was started on a $2,000,000 building programme, providing for the erection of a new infirmary, recreation hall, engineering, chemistry and biological science units, students' union and agricultural building during the biennium 1927–29, in addition to which, a constitutional amendment authorizing an $8,000,000 bond issue for the erection and equipment of buildings at the College was to be submitted to the voters of Pennsylvania in November, 1928. A grade point system for graduation affecting the seniors of 1927–28 was inaugurated, under which each senior must have earned grade points equivalent to the number of credit hours total in his four years. The president, Ralph D. Hetzel, LL.B., LL.D., was inaugurated on June 14, 1927.

PENSIONS. See OLD AGE PENSIONS; and under UNITED STATES.

PERAK, pā'räk'. The most northern of the Federated Malay States (q.v.).

PERKIN MEDAL. See CHEMISTRY, INDUSTRIAL, under *Medals*.

PERL, Felix. Polish socialist, died at Warsaw on April 15. He was born at Warsaw in 1871. He was the principal founder of the Polish Socialist party and editor of its organ *Robotnik*. Persecuted by Russia for many years he took refuge in France, England, and America from 1905 to 1908. During the latter years of his life he criticized what he described as the chief evils of Poland—the system known as precautionary imprisonment, or detention without trial or indictment; the suppression of journals out of line with official policies, and the refusal of permits to public meetings of all sorts when held by racial minorities and workers' and peasants' organizations.

PERMANENT COURT OF INTERNATIONAL JUSTICE. See Arbitration, International.

PERRY, The Rev. James De Wolf, D.D. Presbyterian clergyman, died at Philadelphia, on April 11. He was born at Bristol, R. I., Dec. 22, 1839. After graduating at Brown University he studied at the Berkeley Divinity School, Middletown, Conn. In 1864 he was graduated from the Philadelphia Divinity School of which he was the oldest alumnus at the time of his death. He began his ministry in Providence, R. I., as assistant rector of Grace Church, serving from 1861 to 1862. He then was assistant rector of St. Luke's, Philadelphia. In 1866 he was called as rector of Calvary Church, Germantown, Pa., and continued there for a period of 42 years. For 31 years he was warden and vice president of the Church Training House of Pennsylvania. Dr. Perry was the father of Bishop James De Wolf Perry, Jr., of Rhode Island and was a grandnephew of Commodore Perry, the hero of the Battle of Lake Erie.

PERSIA, A monarchy of southwestern Asia, extending north from the Persian Gulf and the Gulf of Oman to the Caspian Sea. Capital, Teheran.

Area and Population. The area has been variously estimated at from 628,000 to 635,135 square miles; the population at from 8,000,000 to 10,000,000, about 3,000,000 of whom are nomads, among whom Turks, Kurds, Leks, and Arabs predominate. The number of Europeans has been placed at 1200. The population of Teheran has been given at 350,000, but this figure is merely conjectural. Other important cities with their estimated populations are: Tabriz, 180,000; Isfahan, 100,000; Meshed, 85,000; and Resht, 80,000. The great mass of the people are Moslems of the Shiite sect.

Education. In recent years education has made very rapid strides in Persia, where a new order of things is gradually being worked out. According to the latest available statistics there were 252 government schools, 299 national schools, 108 private schools, 87 foreign schools, 240 religious schools, and 1026 Maktab schools. The above schools provided education for 73,534 boys, 17,485 girls, and 4979 students of religion. The foreign schools are run by missions supported by various denominations throughout the world.

Production, etc. Satisfactory crops were indicated for the year 1926, in sharp contrast to the droughts of 1925 when the importation of large quantities of cereals was necessary to avert a famine. During 1926 there was an abundant water supply throughout the crop season and grains were unusually free from rust and senn. Difficulty was encountered, however, in marketing the export surplus of agricultural products because of Russia's existing embargo on imports from Persia, thus cutting off Persia's chief market for such products. Cotton production in 1926 was reported to have been much larger than in 1925, and wool production was estimated at 9,810,000 pounds as compared with 6,540,000 pounds in 1925 and 14,887,000 pounds in 1924. The low figure for 1925 wool was the result of inroads made by anthrax during that year. Tobacco production was estimated at 25,500,000 pounds, as against 23,000,000 pounds in 1925.

Production of the Anglo-Persian Oil Co., Ltd., in the fiscal year 1925–26 totaled 4,500,000 tons of crude petroleum, or about 250,000 tons more than in 1924–25. For the first six months of the 1926–27 fiscal year production totaled 2,310,000 tons. Production for the entire year 1926–27 was estimated at 4,750,000 tons. Royalties from oil were estimated at £728,780 for the year 1925–26 and were expected to approximate £975,000 in 1926–27.

Persia's leading industry, the manufacture of rugs, had a satisfactory year. Exports in 1925–26 exceeded those of 1924–25, and preliminary returns for the first six months of 1926–27 indicated still further expansion. However, the gradual reduction of foreign capital in Persia, normally utilized for advances on contracts for rugs, revealed certain unsatisfactory conditions within the industry which may ultimately affect exports. The match factory situated at Tabriz and the spinning factory at Isfahan were reported to have functioned normally in 1926. These two and a woolen mill in Meshed are the only factories in Persia of any importance.

Commerce. The foreign trade of Persia for 1925–26 showed an excess of exports over imports considerably less than for the previous year and, if exports of mineral oils be excluded, the balance was unfavorable by approximately $9,000,000 more than in 1924–25.

FOREIGN TRADE OF PERSIA FOR THE FISCAL YEAR ENDED MARCH 20

Commodity	*1925–26*	
IMPORTS	*Quantity*	*Value* [a]
Cotton textiles .....metric tons	16,740	$25,996,900
Sugar ....do...	68,647	18,810,800
Tea ....do. .	6,501	6,533,700
Wheat, barley, and other alimentation cereals.metric tons	34,459	2,554,100
Mineral oils and greases..do...	36,058	2,504,800
Cotton yarns ....do...	2,416	2,213,800
Rice ....do...	20,608	1,802,800
Silver bars ....do...	84	1,715,200
Gold and silver coins	....	2,887,500
Vehicles of all kinds. number.	4,709	1,618,500
Iron manufactures other than machinery ......metric tons	7,595	1,576,800
Haberdashery, toys, and household utensils	....	1,488,700
Machinery, tools and implements ....metric tons	8,886	1,477,700
Wool textiles ....do...	309	1,408,000
Flour ....do...	14,827	1,299,900
Textiles, cotton mixed with artificial silk ....metric tons	895	1,139,500
Jute and hemp textiles	....	[b]
Chemical products..metric tons	10,989	969,800
Clothing	....	908,700
Iron and steel, in ingots, bars, and plates and structural iron ....metric tons	6,859	692,200
Textiles, wool and cotton mixture ....metric tons	216	664,600
Cement ....do...	13,436	595,800
Raw lambskins ....do...	122	408,800
Drugs, various	....	406,400
Glassware ....metric tons	969	293,200

FOREIGN TRADE OF PERSIA FOR THE FISCAL YEAR ENDED MARCH 20—*Continued*

Commodity	*1925–26*	
IMPORTS	*Quantity*	*Value*[a]
Nails, screws, rivets, and tubes .... metric tons	1,558	286,300
All others	... .	12,854,040
Total	....	88,102,540
EXPORTS		
Mineral oils ...... metric tons	3,784,169	$54,480,000
Carpets and rugs, wool..do ..	5,001	11,757,700
Fruits, fresh and dried..do...	90,168	7,929,400
Opium . .. .do .	512	7,043,000
Cotton, raw . ... .do...	17,991	6,196,000
Rice ....do...	62,397	4,322,900
Wool, raw . . ..do...	5,509	2,179,300
Sheep casings .. . ..do...	376	1,577,300
Prepared hides . .. ...do...	1,285	1,532,200
Tea ....do .	961	1,064,100
Silver coins	....	871,900
Gum tragacanth ..metric tons	1,709	788,500
Cotton textiles ....do...	260	610,700
Raw fox, marten and other skins ... . number.	123	606,700
Raw lambskins .... ..do...	653,043	580,200
Other raw skins ....do...	1,132	426,200
Tobacco, unmanufactured ... .metric tons	1,301	391,400
Silk textiles .. ..do...	24	288,300
All others	....	3,293,192
Total value	....	105,938,992

[a] The kran was converted at the rate of 10 to $1.
[b] Probably included in "All others."

FINANCE. The conditions of state finances during 1926 was satisfactory. Payments on account of budgetary credits were made promptly, the public debt was further reduced, and there was at all times a good balance in the treasury. The public debt on Dec. 30, 1926, comprised £1,687,036 funded and $2,038,426 floating. During the quarter ended December 30, there was paid on the funded debt £9452 on account of principal and £23,711 on account of interest charges; and on the floating debt, $500,000 and $55,240, respectively. The total resources of the treasury amounted to $17,167,100 on Dec. 30, 1926. Preliminary returns for the first nine months of 1926–27 were larger than for the corresponding period of 1925–26, amounting to $22,911,340, as against $19,711,900. The sugar and tea monopoly revenues show the largest increase for this period, totaling $4,508,000 and equaling the estimates for the full year, as against $2,150,000 for the same period of 1925–26. Other increases were noted in the returns from the new road tax and from direct and indirect taxes. Actual collections for the 1925–26 fiscal year totaled $29,694,850, with estimated expenditures of $28,996,400. Estimates of revenues for 1927–28 showed little change from those for 1926–27, which were placed at $35,270,000. A surplus was expected for both 1925–26 and 1926–27.

COMMUNICATIONS. The number of vessels entered and cleared at Persian ports in 1925 was 26,025 as against 25,043 in 1924. The only railway for which information was available was that between Tabriz and Julfa. This road is owned by the Persian government and was received from Russia (which built it during the occupation of 1909–1918) as part compensation for damages done during the World War when Russia and Turkey used Azerbaijan as a battleground. At the close of 1926 the length of this line totaled 276 kilometers. Operating revenues amounted to 3,805,421 krans and other revenues to 34,763 krans; operating expenses were 2,444,392 krans; other expenses are not reported separately. The rolling stock in operation at the close of the year comprised 7 locomotives, 175 freight cars, and 6 passenger cars. The condition of the equipment was considered good. No new rolling stock was purchased during 1926.

Six surveying parties under the direction of American engineers were working during the year along the proposed line of the Trans-Persian railway which will connect Bandar-i-Gaz on the Caspian Sea, with a Persian Gulf port, probably Khour-i-Moussa. The preliminary survey along the Karum River between Mohammerah and Ahwaz had been completed by the end of June. In the northern part of the country one party at the end of October was working east of Teheran. Another party was engaged in a survey of Bandar-i-Gaz harbor. A credit of $5,000,000 out of the sugar and tea monopoly trust fund was voted by the Parliament for the preliminary work of the Railway Administration. At the end of the year it was reported that work would start immediately on the roadbed north from Ahwaz, west from Teheran in the direction of Kazvin, through which city it has been decided to route the line, and west and south from Bandar-i-Gaz.

GOVERNMENT. Executive power is vested in the Shah, an absolute ruler down to 1906, when he consented to a constitutional form of government or Mejliss. The reigning Shah in 1927 was Riza Khan Pahlevi, publicly proclaimed Dec. 16, 1925. The cabinet as constituted on June 2 is given below under *History*.

HISTORY. Persia passed a comparatively quiet year and seemed to be devoting her entire resources to the building up and development of her country. As noted above under *Communications*, a commission was at work throughout the year planning and surveying a thorough railway system for the state. In the first month of the year the cabinet resigned to prevent a vote of confidence from being taken. The cause of the trouble was the failure of the government to consult the Parliament in connection with further concessions made to the Anglo-Persian Oil Company.

The government, reorganized early in February, had severe difficulty in maintaining a majority in Parliament and was compelled to resign on May 28. A new cabinet was formed on June 2, as follows: Prime Minister, Mehdigholi Khan Hadayet; Foreign Affairs, Ali Kuli Khan Ansari; Justice, Mirza Mohammed Ali Akbar Khan Daver; Finance, Firuz Mirza Firuz; Interior, Mirza Husain Khan Samy; Education, Mirza Mohammed Tadayyon; War, Jaffar Kuli Assad.

In April the Shah announced that all foreign capitulations would be abolished on May 10, 1928. This announcement brought to an end the custom that had prevailed in Persia for more than a century, by which foreign consulates were represented whenever a legal dispute arose between a national of a foreign country and a Persian. Modern Persia, however, felt that it was perfectly capable of settling any problems that might arise between Persians and citizens of other countries and consequently issued this announcement, having previously sounded out the various diplomatic agents in Persia.

Another sign of the growing independence of the Persian government was the attempt of part of the authorities to curtail the powers of Dr. Arthur C. Millspaugh, who had been American adviser to Persia since 1922. In his quarterly reports he had shown how the country had progressed since that time economically, socially, and politically. The expenditures on education, public works, and health had more than doubled and the trend of the times was notably reflected in the improvements noticeable in the country. With the coming of the new Shah (see YEAR BOOK for 1925), there was a strong demand that Dr. Millspaugh's powers be curtailed. His contract expired in September, 1927, and he refused to renew it because of the curtailment of his powers by the government. The Prime Minister assumed the duties of the Administrator-General of Finances until a successor to Dr. Millspaugh could be appointed.

A long outstanding dispute with Russia was settled in the autumn, by the signing of a pact of neutrality and non-aggression between the two countries. Each government promised to refrain from sending armed forces into the territory of the other and also agreed to remain neutral if either country was attacked by a third power. The chief bone of contention between the two countries, the Caspian Sea fisheries, was disposed of by a 25-year agreement to work the fisheries jointly by means of a company under a Persian chairman. The settlement of this dispute was expected to bring about a revival of Persian trade, largely because its settlement brought about a lifting of the embargo on Persian goods destined to cross the Russian frontier.

PERSIAN LITERATURE. See PHILOLOGY, MODERN.

PERU, pē-rōō′. A republic on the Pacific coast of South America; bounded on the north by Ecuador and Colombia; on the east by Brazil and Bolivia; and on the south by Bolivia and Chile. Capital, Lima.

AREA AND POPULATION. On the basis of an estimate by the Lima Geographical Society in 1915, the total area, including Tacna, is 532,047 square miles. The last official census was in 1876, when the population was fixed at 2,660,881; an estimate in 1896 placed it at 4,634,601; another in 1921 placed it at about 5,500,000, although grave doubts were expressed in some quarters as to whether the population was increasing at all. The above figures do not include an indeterminate number of uncivilized Indians. The capital, Lima, according to the official census of Dec. 17, 1921, had 176,467 inhabitants. The estimated population of the principal cities in 1924 was as follows: Lima, 187,000, with suburbs, 220,000; Callao, 58,500; Arequipa, 50,000; Cuzco, 28,000; Ica, Trujillo, and Chiclayo, 25,000 each.

EDUCATION. The number of schools offering primary instruction in 1925 was 826, with 1465 teachers. The enrollment in these was 49,749, with an average daily attendance of 33,675. In view of the success obtained with the traveling schools, the number of these was increased to 30, and their field of operation was extended to include the provinces of La Paz, Chalatenango, and Morazan. The number of national secondary schools which were in operation was 28, 3 of these being for girls. Six normal schools were in session, and of these 3 were of higher grade. For higher education there is the central university at Lima.

PRODUCTION, ETC. Sugar, cotton, and coffee form the principal agricultural products. The sugar industry, which is first in importance, is engaged in chiefly in the coastal region, 134,000 acres being devoted to the cultivation of cane in 1925, and the production 269,760 tons. The cultivation of cacao was extending, and other products were wheat, corn, ramie, tobacco, wines, and olives. Hides, wool, and skins are important articles of export. Dyes, with cinchona and other medicinal plants, contribute to the country's wealth; and the manufacture of cocaine is carried on in several towns to some extent.

The value of Peru's mineral production in 1926 increased 24 per cent over that for the preceding year, a significant gain when it is considered that the economic condition of the world's metal markets was less favorable than in 1925. A weight increase of 19.7 per cent, in contrast to the value increase of 24 per cent, is revealed by the following table, which shows total extraction that could be used or was of value, according to final figures for 1925 and preliminary for 1926:

MINERAL PRODUCTION OF PERU

Product	*1925 Kilos*	*1926 Kilos*
Metallic minerals:		
Gold	3,604	3,740
Silver	653,646	669,671
Copper	36,844,210	42,510,952
Lead	16,573,764	20,541,094
Zinc	14,417,654	21,629,023
Vanadium	245,829	858,327
Antimony	17,020	99,004
Arsenic	119,287	......
Tungsten	5,439	......
Quarry products:		
Quartzite	21,861,000	19,255,000
Limestone	74,000,000	77,000,000
Lime, live or dead	5,330,000	5,544,200
Cement	11,278,000	29,295,000
Gypsum	14,644,000	16,823,460

COMMERCE. Foreign trade for 1926, exclusive of that through Iquitos and by parcel post, amounted to £P41,767,167, as against £P38,294,019 in 1925. The total exports amounted to £P23,966,249, as against £P21,648,745 in 1925, or an increase of £P2,317,504 for 1926. The volume of exports in 1926 was 1,739,253 tons, against 1,306,102 tons in 1925, the increases showing in almost all the principal exports. Increases in mineral ores and concentrates show new activities in zinc and copper mining in the northern part of the Republic, these exports combined in 1926 being 60,459 tons, worth £P1,430,353, as against 21,812 tons in 1925 valued at £P745,428.

The principal exports of 1926 compared with those of 1925 are as follows:

Product	*1925 Tons*	*1926 Tons*
Petroleum	951,412	1,198,756
Cotton	39,903	48,981
Copper with gold and silver	36,799	39,742
Mineral ores	14,883	34,665
Sugar	208,140	329,794
Mineral concentrates	6,929	25,794

Imports amounted in 1926 to 607,324 tons, worth £P18,235,601, against 550,181 tons worth £P17,075,311 in 1925. The customs receipts for 1926 amounted to £P2,803,700, against £P2,862,746 in 1925. The decrease in revenue on exports was due to the low prices of cotton and sugar which prevailed throughout the year.

FINANCE. The budget for 1926–27 at £P10,371,542. A law passed during the summer authorized the chief executive to issue bonds up to the amount of £P5,000,000 or the equivalent in United States currency, guaranteed by the proceeds from the tobacco monopoly. The bonds were to be issued in series, the amount of each series to be determined by the president. Both the principal and interest on these bonds will be payable in London or New York. The bonds shall not be issued for less than 90 per cent of the nominal value, or with an interest above 7 per cent a year, with accumulative amortization of not more than 1 per cent annually. These bonds will be exempt from all taxes. The proceeds of this loan will be used, among other things, for purchasing a site to establish a cigar and cigarette factory and buying the necessary machinery for equipping the factory, for the construction of railroads, and for carrying on sanitation and irrigation works commenced.

COMMUNICATIONS. At Callao there entered in the foreign trade in 1925, 743 steamers of 2,413,344 tons, and cleared 756 of 2,456,541 tons. The total working length of Peruvian railways is 2081 miles, of which 1486 miles belong to the state. A 5-mile relocation in the Central Railway of Peru, completed in 1926, was made necessary by floods and avalanches which washed out bridges and obliterated a stretch of the original line about 45 miles from the coast.

GOVERNMENT. Executive power is vested in a president elected for five years and eligible for a succeeding term; and legislative power in the congress consisting of a senate with 35 members and a house of representatives with 110 members. The president acts through a cabinet of seven, appointed and removed at his pleasure. President in 1927, Agusto B. Leguia.

HISTORY. The high lights of Peruvian foreign affairs as gleaned from President Leguia's address in midsummer to congress were reported as follows: The work of the boundary commissions, charged with the delimitation of the boundaries between Peru and Bolivia and Peru and Brazil, was being actively prosecuted. The studies for the railway which will connect the railroad systems of Peru and Bolivia, to the north of Lake Titicaca, were being continued steadily. On July 28, the ratifications were exchanged of the Treaty on Compulsory Arbitration entered into between Brazil and Peru. The Chief Executive again recommended the Peruvian-Colombian Boundary Treaty to the attention of Congress and declared that the policy of his administration aimed to determine with precision the boundaries of the Republic. For a discussion of the Tacna-Arica dispute, consult the article on ARBITRATION, INTERNATIONAL.

A significant change occurred in the Peruvian constitution during the year, when it was amended to permit the reëlection of the President without any restrictions. It seemed to be the consensus of opinion that the purpose of this amendment was to continue President Leguia in office indefinitely. He was elected in 1919 and reëlected in 1924. According to the constitution he could be reëlected only once. The change, however, permitted him to run as often as he had the confidence of the people. To many Peruvians President Leguia embodied the personification of a nationally conscious Peru, one which would stand up for its rights and compel respect on the part of other nations. He was hailed as a Mussolini-like savior of the country. Doubtlessly his strong stand on the Tacna-Arica question had endeared him in the hearts of his countrymen. His advocacy of a strong navy toward the end of the year seemed to inaugurate a new era for the country in the family of nations.

PETROLEUM. In 1927 world production of petroleum was estimated at 1,254,145,000 barrels, an increase of 156,000,000 barrels over the 1926 figure of 1,098,389,000 barrels, according to preliminary figures of the U. S. Bureau of Mines. Large increases in production were recorded by the United States, Russia, Venezuela, Persia, Rumania, and Colombia, but Mexico, on the other hand, showed a decline of 26,000,000 barrels.

The estimated production of the various countries, as compared with 1926, is shown in the following table:

Country	*Barrels (thousands)* *1927*	 *1926*
United States	905,800	770,874
Russia	72,400	64,311
Venezuela	64,400	37,226
Mexico	64,200	90,421
Persia	36,800	25,842
Rumania	26,100	23,314
Netherlands E. Indies	21,400	21,242
Colombia	14,600	6,444
Peru	9,800	10,762
Argentina	8,700	7,952
British India	8,200	8,728
Poland	5,800	5,844
Trinidad	5,200	5,278
Sarawak	5,000	4,942
Japan and Formosa	1,700	1,900
Egypt	1,270	1,888
Germany	700	653
France	525	478
Canada	500	364
Ecuador	450	214
Sakhalin	200	181
Czecho-Slovakia	140	150
Italy	60	48
Others	200	33
Total	1,254,145	1,098,389

In the United States the total production of crude petroleum in 1927 was estimated by the United States Bureau of Mines at 894,435,000 barrels as compared with 770,874,000 barrels, the final figures for 1926. There were decreases in production in Arkansas, Kansas, Louisiana, Montana, and Wyoming, but notable gains in California, Oklahoma, and Texas.

The preliminary figures of the United States Bureau of Mines for 1927 are given in the accompanying table together with the final figures for the year 1926.

The total output of petroleum in Mexico in 1927 was stated at 64,119,884 barrels against 90,609,991 barrels in 1926. In 1927 according to statistics of the Mexican Petroleum Bureau, 804 drilling permits were issued and during the year 204 productive wells were brought in with a total initial daily capacity of 383,702 barrels.

The petroleum export trade of Soviet Russia for 1927 was stated at 2,135,000 metric tons, which was a new record for that country. The production, given at 10,413,000 metric tons, was said to be the heaviest in 25 years, and was more than double the 1913 output and 18.4 per cent greater than in 1926. In 1927 the oil exports were more than double those of the last pre-war year.

The total value of petroleum and products exported from the United States in 1927 was $486,143,157, as compared with $554,533,629 in 1926.

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY
[*Barrels of 42 U. S. gallons*]

Field	*1927*	*1926* [a]
Appalachian	30,458,000	28,572,000
Lima-Indiana	1,833,000	2,030,000
Michigan	435,000	94,000
Ill.-S. W. Ind	7,751,000	8,418,000
Mid-Continent	543,343,000	423,867,000
Gulf coast	49,679,000	45,275,000
Rocky Mountain	30,184,000	37,945,000
California	230,752,000	224,673,000
U. S. Total	894,435,000	770,874,000
State		
Arkansas	40,179,000	58,332,000
California	230,752,000	224,678,000
Colorado	2,787,000	2,768,000
Illinois	7,024,000	7,760,000
Indiana	852,000	808,000
Southwestern	727,000	658,000
Northeastern	125,000	150,000
Kansas	40,740,000	41,498,000
Kentucky	6,733,000	6,274,000
Louisiana	21,061,000	23,201,000
Gulf coast	3,087,000	4,140,000
Rest of State	17,974,000	19,061,000
State	*1927*	*1926* [a]
Michigan	435,000	94,000
Montana	5,048,000	7,727,000
New Mexico	1,203,000	1,666,000
New York	2,289,000	1,956,000
Ohio	7,529,000	7,272,000
Central and Eastern	5,821,000	5,392,000
Northwestern	1,708,000	1,880,000
Oklahoma	277,274,000	179,195,000
Osage County	23,586,000	25,356,000
Rest of State	253,688,000	153,839,000
Pennsylvania	9,596,000	8,961,000
Tennessee	60,000	43,000
Texas	213,768,000	166,916,000
Gulf coast	46,592,000	41,135,000
Rest of State	167,176,000	125,781,000
West Virginia	6,009,000	5,946,000
Wyoming	21,146,000	25,776,000
Salt Creek	14,299,000	18,010,000
Rest of State	6,847,000	7,766,000
Classification by gravity (approx.)		
Light crude	784,149,000	633,726,000
Heavy crude	110,286,000	137,148,000

[a] Final figures; total includes approximately 3,900,000 barrels consumed on leases, etc., not included in 1927 figures.

Included in the 1927 exports were: crude petroleum, 15,843,405 barrels (bbl., 42 gals.) valued at $25,944,489; refined oils, 115,501,010 barrels, valued $429,900,884; distributed as follows: Gasoline, naphtha, etc., 43,436,328 barrels, valued at $210,369,625, illuminating oil (kerosene) 19,279,503 barrels with a value of $78,873,861, gas and fuel oil, 43,018,508 barrels valued at $49,943,814, lubricating oil, 9,622,894 barrels with a value of $88,826,865, and miscellaneous refined oils, 6,038,629 gallons, valued at $1,886,719; lubricating greases, 100,483,272 pounds, valued at $5,298,592; paraffin wax, 340,297,094 pounds, valued at the sum of $15,029,503.

Canada was the principal market for crude petroleum, taking 13,036,216 barrels with a value of $21,579,333, while Japan ranked second, taking 1,633,389 barrels valued at $1,904,556; and Cuba ranked third, with an import trade valued at $1,157,309. The United Kingdom led as a market for gasoline and naphtha, the consumption being 13,590,870 barrels with a value of $63,088,679, and also in imports of American lubricating oil which had a total value of $7,039,855 and of gas and fuel oil, valued at $8,283,212. France imported 28,147,082 barrels of gasoline, naphtha, etc., valued at $28,147,082, and Australia ranked third with imports of 2,470,403 barrels, valued at $14,625,064. China, Hongkong, and Kwantung, led in imports of American illuminating oil, with a total of 2,562,821 gallons, valued at $14,648,564.

The imports of petroleum and products in 1927 had a total value of $113,434,019, as compared with $124,556,211 in the previous year, and were distributed as follows: crude petroleum, 58,382,632 barrels, value, $78,609,117; refined oils, 13,281,185 barrels, value, $33,637,919; and paraffin and paraffin wax, 20,461,774 pounds, value, $1,186,983. The principal imports of crude petroleum came from Mexico which supplied 26,019,058 barrels with a value of $30,442,475 in 1927 as compared with 40,398,454 barrels valued at $46,777,825, in 1926, while Venezuela ranked second with a value of $14,945,832 and Netherland West Indies third, with $14,228,581, followed by Colombia, and Peru. See CHEMISTRY, INDUSTRIAL.

PHILADELPHIA SYMPHONY ORCHESTRA. See MUSIC.

PHILANTHROPY. See WELFARE WORK.

PHILHARMONIC ORCHESTRA. See MUSIC.

PHILIPPINES, fĭl′ĭ-pĭns, -pēns, -pīns. The largest island group of the Malay archipelago; a possession of the United States, ceded by Spain in the treaty of Apr. 11, 1899. Capital, Manila.

AREA AND POPULATION. Only 466 of the 7000 islands which make up the group have an area of one square mile or more. The most important islands with their area in square miles are as follows· Luzon, 40,814; Mindanao, 36,906; Samar, 5123; Negros, 4902; Palawan, 4500; Panay, 4448; Mindoro, 3794; Leyte, 2799; Cebu, 1695; Bohol, 1634; and Masbate, 1255. Total area, 114,400 square miles; population, according to the census of 1918, 10,314,310. An estimate of the population in 1926, based upon official computations, placed it at 11,568,994. The population of Manila was 285,306, according to the census of 1918. According to the same enumeration, the race distribution was as follows: Brown, 9,386,826; yellow, 50,826; white, 12,399; negro, 7623; half-breed, 34,663. The immigrants in 1926 numbered 33,541 and the emigrants 31,665.

EDUCATION. The Bureau of Education reports for the year 1926 showed that there had been slight decreases in the total annual enrollment in the number of teachers and primary schools and a slight increase in the intermediate and secondary enrollments. The total annual enrollment decreased from 1,096,758 to 1,061,612. This decrease was anticipated because of the closing of schools in which the attendance did not justify maintenance. This was one of the effects of over expansion of several years ago. One-teacher schools had been opened in barrios where the enrollment after a number of years decreased to such an extent that the cost of maintaining such schools was prohibitive. Another factor which caused a decrease in schools, teachers and enrollment was the fact that the Education Bureau put into effect a regulation that no new classes were to be opened and maintained by voluntary contributions unless a sufficient amount was collected before the schools opened to insure their operation during the entire school year. There were 25,322 teachers, employed in 1926, only 294 of whom were Americans as against 25,701 in 1925 with 310 Americans. As a result of closer inspection some of the poorest of the private schools were closed. Enrollment increased from 81,884 in 1925 to 88,001 in 1926.

PRODUCTION. Agriculture is by far the most important productive industry of the Philippine Islands on the basis both of value and of the number of people employed. The 10 leading crops on the basis of value, arranged in order of their importance, are rice, sugar cane, coconuts, abaca or manila hemp, corn, bananas, tobacco, maguey, sweet potatoes, and mangoes, but $235,910,320, or 90.4 per cent, of the total value of the 28 leading crops is accounted for by the first five named. There are only 14,342 square miles, or 12.5 per cent of the total land area of the islands, under cultivation. No estimate of the total value of these lands is available.

The latest estimate of livestock showed 1,769,000 carabaos, 914,000 cattle, 289,000 horses and mules, 8,811,000 hogs, 1,349,000 goats, and 345,000 sheep. The islands are rich in mineral resources but they are as yet undeveloped. The more important minerals include silver, lead, zinc, copper, iron, coal, petroleum, asbestos and manganese, all of which are mined to some extent. Experts of the U. S. Department of Agriculture have reported that vast tracts of land are well adapted to the cultivation of rubber with a potential production of 70,000 tons annually. Estimates of land suitable for rubber cultivation vary from 1,500,000 to 2,000,000 acres, but adequate labor supply does not seem available.

COMMERCE. The Bureau of Foreign and Domestic Commerce at the very end of the year stated that the depression which marked business in the Philippine Islands at the close of 1926 carried over into 1927. However, some improvement was shown as the year advanced. A record sugar crop compensated for the previous season's comparative failure, and a bountiful rice crop greatly reduced the islands' dependence upon foreign sources for its staple foodstuff. Copra and abaca were generally quiet with price fluctuations tending downward. Import trade for the first 10 months of the year was below that of the corresponding period in 1926, owing chiefly to lesser imports of cotton piece goods. Exports for the 10 month period considerably exceeded exports for the corresponding period of the previous year and a large favorable trade balance resulted.

The foreign trade of the Philippine Islands in the year 1927 consisted of total imports valued at $115,851,471 and total exports valued at $155,574,085. Of the imports, goods to the amount of $71,478,297 came from the United States and of the exports the United States received $116,038,250. Sugar, as usual, was the leading export, the total amount exported amounting to 553,324,007 kilos, valued at $50,295,959, of which 508,317,150 kilos, valued at $47,886,986, went to the United States. The copra exports for the year amounted to 199,318,985 kilos, valued at $19,155,740, of which the United States received 157,827,446 kilos, valued at $15,238,156. Coconut oil was exported to the amount of 144,802,683 kilos, valued at $24,840,683, of which the United States took 141,588,606 kilos, valued at $24,284,361. The cigar exports for the years numbered 207,578,605, valued at $4,652,225, of which 167,300,765, valued at $3,768,915, went to the United States. The total hemp exports in 1927 were 1,176,488 bales, value $29,687,129, being distributed as follows: To the United States 383,764 bales, value $12,261,976; to the United Kingdom, 326,074 bales, value $7,156,566; to Japan, 256,907 bales, value $5,389,003; and to other countries, 209,743 bales, value $4,879,584.

GENERAL COMPARATIVE STATEMENT OF PHILIPPINE ISLAND FINANCES, 1926–28

	Requested, 1928 Pesos	*Estimated, 1927 Pesos*	*Actual, 1926 Pesos*
Income	72,443,260.00	72,289,450.00	78,164,590.13
Revenue from taxation	55,248,360.00	55,246,150.00	59,170,155.63
Incidental revenue	3,841,800.00	3,841,500.00	4,721,894.32
Earnings and other credits	13,353,100.00	13,201,800.00	14,272,540.18
Expenditures	72,338,945.00	76,102,487.00	90,699,829.84
Senate	722,550.00	713,450.00	596,749.88
House of Representatives	1,290,353.00	1,281,253.00	1,131,547.07
Resident Commissioners	12,125.00	12,125.00	12,000.00
The Executive	1,199,843.00	1,125,112.00	1,464,446.55
Supreme Court	268,947.00	259,253.00	250,322.52
Offices under the Governor-General	784,320.00	749,120.00	676,128.21
Department of the Interior	8,021,410.00	7,877,458.00	7,689,524.94
Department of Public Instruction	20,366,271.00	19,997,702.00	18,466,445 80
Department of Finance	3,458,435.00	3,433,645.00	18,665,003 82
Department of Justice	4,066,429.00	4,055,848.00	3,811,433.25
Department of Agriculture and Natural Resources	4,556,884.00	4,472,094 00	4,519,734.50
Department of Commerce and Communications	7,791,978.00	7,621,998.00	7,068,202.43
University of the Philippines	1,800,000.00	1,800,000.00	1,900,000.00
Public debt	10,084,400.00	10,134,000.00	10,189,896.36
Extraordinary charges	210,000.00	210,000.00	184,640.79
Investments	705,000.00	1,905,000.00	6,532,357.28
Public works funds	7,000,000.00	10,454,429.00	7,541,896.94
Excess of income over expenditures	104,315.00	3,813,037.00	12,535,239.71
Surplus, January 1	....	12,582,479.30	44,744,959.10
Surplus, December 31	....	8,769,442.30	32,209,719.39
Deductions	....	4,000,000.00 [b]	19,627,240.09 [a]
Cash surplus at the end of the year	....	4,759,442.30	12,582,479.30

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[a] Balances of outstanding appropriations, 3,822,518.55 pesos; continuing assets, net, 9,763,840.67 pesos; and advances to money order fund, 6,040,880.87 pesos.

[b] For the completion of Post-office building, 2,000,000 pesos; and to complete the agreed purchase of shares of stock of the Manila Railroad Company under Act No. 3116, 2,000,000 pesos.

Finance. The accompanying table (page 634), from the report of the Governor-General to the Philippine Legislature, gives a general comparative statement of the financial condition of the islands.

The total bonded indebtedness of the islands on June 30, 1927, was $79,684,500.

Shipping. Most of the foreign shipping is done through the port of Manila, although some of the smaller ports have direct communications with foreign countries. In the calendar year, 1926, 1076 vessels of 4,097,551 net tons entered the ports of the Philippines and 1066 of 4,078,032 tons cleared. In the same year 19,581 vessels of 2,592,455 tons entered in the coastwise trade and 19,961 vessels of 2,606,605 tons cleared.

Railways. There are approximately 792 miles of railway and 6622 miles of public roads in the islands.

Government. Executive power is in the hands of a governor-general appointed by the President of the United States, by and with the advice and consent of the Senate; and in six departmental secretaries, all of whom are Filipinos, with the exception of the vice governor (appointed in the same manner as the governor-general), who acts as secretary of public instruction. Legislative power is in a senate of 24 members and a house of representatives of 93 members, all of whom are elected by popular vote, with the exception of nine representatives and two senators appointed by the governor-general to represent certain provinces. A council of state, composed of the governor-general as president, the presidents of both branches of the legislature, and the departmental secretaries, constitutes the link between the administrative and legislative departments. The Governor-General in 1927, was Major General Leonard Wood (q.v.).

History. The outstanding event in the history of the islands in 1927 was the death of Major General Wood (q.v.), who had held the position of Governor-General since Oct. 5, 1921. General Wood died at Boston, Mass., after an operation, on August 7. General Wood's administration of the Philippines was a source of continual commendation and bitter criticism, depending upon the outlook of the commentator. From the point of view of these who favored independence for the islands, particularly the Filipino nationalists, he was bitterly attacked and opposed. It is a well known fact that after 1923 very little constructive legislation was passed by the legislature of the islands because of the death struggle between the Filipino legislature and the Governor-General. As noted in the preceding Year Book, the report of Carmi Thompson, the President's personal investigator, recommended the abolition of the military aspects of the administration of the islands and the substitution of civil officers. Mr. Thompson's report held both Governor Wood and the Filipinos at fault. On the other hand there is no question concerning the constructive work accomplished under the governorship of General Wood. Under his leadership the commerce and industry of the islands improved considerably, education was brought to a much higher standard, and the financial and economic conditions of the possession were placed in a very healthy position.

On December 13, Henry L. Stimson was appointed by President Coolidge to succeed Major General Wood as Governor-General of the islands. As noted in the article on Nicaragua. (q.v.), Mr. Stimson was the personal representative of the President in an investigation of that unhappy republic and was instrumental in settling the differences between Diaz and Sacasa and in arranging American supervision for the next presidental elections. Mr. Stimson was entirely familiar with the problems of the Philippines, of which he made a study during 1926. He announced that he would carry out the policies of General Wood, who had been a strong friend of his. This announcement was not welcome to those opponents of General Wood who had hoped for a complete liberalization of the American policies toward the islands. Mr. Stimson accepted the post as a duty, despite his feeling that his health would suffer in a tropical country. He believed that a fixed policy rigidly carried out would lead to American investments and a great increase in the rubber and other developments there, which had not expanded greatly because of unfavorable political conditions.

Mr. Stimson was born in New York City in 1867. He received degrees from Yale and Harvard Universities and from the Harvard Law School. He served from 1906 to 1909 as District Attorney for the Southern District of New York, leaving office to run for Governor of New York on the Republican ticket. He was Secretary of War from May, 1911, to March, 1913, in the cabinet of President Taft. In the World War he was Colonel of the Thirty-first Field Artillery.

The most notable event in the political fortunes of the islands during the year was the veto by President Coolidge of the plebiscite law of the Filipino legislature. On July 16, 1926, the Philippine House and Senate unanimously adopted a resolution declaring "the constant and intense desire of the Filipino people for immediate, absolute and complete independence." The Legislature voted for a plebiscite on the subject, and, when this was vetoed as beyond their power by General Wood, passed it over his veto on August 30. This act was vetoed by President Coolidge on Apr. 6, 1927. The most important points made in the President's veto message were as follows:

> Under American sovereignty there has been steady progress in the introduction of a common language throughout the archipelago. There has been a continuous development and extension of highways, and, to the degree justified by business, an increase in inter-island means of communication. There has been, in short, a gradual but persistent effort to bring the peoples of the islands together. This effort has not as yet attained its object. The peoples are still in a marked degree isolated from each other. A common language is still a hope rather than an existing fact. There is still resentment at the employment of officials not native to the community, a resentment which, in certain cases, intensified by difference of religion and lack of free communication, becomes open hostility. This situation has created difficulties for the present government and conceivably might lead to the destruction of a government of the islands left to its own resources.
>
> The resources of the islands are still in great number undeveloped. The land, however fertile, is idle. Surrounded by large countries with pressing problems of over-population, can it be hoped that the present immigration control could be maintained by an independent government?
>
> I have dwelt at length on the economic difficulties which would be encountered by an independent government in the Philippines, not because these are necessarily the greatest difficulties, but because they are those that may be most readily appreciated and about which there can be the least controversy. Furthermore, I have heretofore referred to the other difficulties of an internal and external political character.
>
> Such a government, crippled by the direct loss of

revenue, by increased interest rates on loans, and by the paralyzation of its industries, would be called on to incur the added cost of keeping up a diplomatic service, army, navy, and other features of sovereignty. It is obvious that the revenues of the islands would be totally inadequate to maintain a separate government.

These are but a few of the problems which would arise from a status of independence and which should be seriously considered by the people of the Philippines. In noting the constructive advance which they have made on the road of progress under the American flag, the blessings of peace, security, prosperity, liberty, and opportunity that they have enjoyed, they should not lose sight of the fact that without the material aid extended to them—and which they still need—these conditions could not have existed.

The standards of living have been raised, a splendid educational system established, the fundamental rights of the people preserved. They have the rights and privileges of American citizens without the obligations. They pay no Federal taxes, are exempt from the exclusion provisions of our immigration laws, do not pay for the defense or diplomatic services. They are represented in the United States by their own chosen representatives, who are paid by the United States. In the islands the officials of the municipalities are exclusively Filipinos, as are the officials of the fully organized Provinces. In the central government the legislature is made up entirely of Filipinos and possesses powers which no legislature has in this country. The lower judicial officials are all Filipinos The judges of first instance, with but two exceptions, are Filipinos, and of the justices of the supreme court four of the nine are Filipinos. The chief justice is a Filipino. Of the heads of the executive departments, six in number, five are Filipinos. The attorney-general is a Filipino. Prosecuting attorneys throughout the islands are Filipinos. The personnel of the bureaus of civil service, treasury, and commerce and industry is entirely Filipino, and of the bureau of customs and bureau of posts is more than 99½ per cent Filipino. The American officials are but 1½ per cent of the total in the government.

PHILLIPS UNIVERSITY. A coeducational institution of higher learning, at University Station, Enid, Okla.; founded in 1907. The student enrollment for 1926–27 in all departments was 936, and the limited freshman admission was 270. The faculty numbered 39. The productive endowment amounted to $506,830, and the endowment campaign completed during the year pledged $1,252,184 for equipment. There were 14,894 volumes in the library, exclusive of public documents. President, Isaac Newton McCash, A.M., DD., LL.D.

PHILOLOGY, CLASSICAL. One can gain a fair conception of the more important contributions to classical philology by examining lists of articles and books, or abstracts of them, or both, given in certain periodicals—*American Historical Review*, *The American Journal of Philology*, *The Classical Journal*, *The Classical Quarterly*, *The Classical Review*, *The Classical Weekly*, *Historical Outlook*, *Athenæum* (published at Pavia, Italy), *Bulletin Bibliographique et Pédagogique du Musée Belge* (a companion to *Le Músee Belge*, *Revue de Philologie Classique*), *Philologische Wochenschrift*, *Gnomon*, and *Revue de Philologie*. The reviews, too, in these periodicals are very helpful. Especially valuable is *Bibliotheca Philologica Classica, Beiblatt zum Jahresbericht über die Fortschritte der Klassischen Altertumswissenschaft*, whose aim is to cover all publications, both articles and books (except such as are pedagogical in character) in the whole field of classical philology. No attempt is made, however, to indicate the relative values of items listed. Volume 51, covering 1924, contained 4464 items; Volume 52 gave 4884 entries for 1925.

The Association Guillaume Budé, in Paris, published *Dix Années de Bibliographie Classique: Bibliographie Critique et Analytique de l'Antiquité Greco-Latine pour la Période 1914–1924: Première Partie, Auteurs et Textes.* In this the Greek and Latin authors are listed in alphabetical sequence, and books, articles, editions, etc., dealing with those authors are then given. In many instances there is a brief outline of the contents of book or article. A further valuable feature is the inclusion of references to reviews of articles or books.

The Year's Work in Classical Studies, published in England, lists material from July 1 to June 30. The volume for 1926–1927 contained the following articles: "Greek Literature," J. F. Dobson; "Latin Literature," A. D. Nock; "Greek History," M. Cary; "Roman History," H. Last; "Greek and Roman Religion," H. J. Rose; "Ancient Philosophy," Dorothy Tarrant; "Greek Palæography and Textual Criticism," T. W. Allen; "Latin Palæography and Textual Criticism," A. C. Clark; "Greek Archæology and Excavation," A. M. Woodward; "Italian Archæology and Excavation," T. Ashby.

To the *Loeb Classical Library* (see YEAR BOOKS, 1911–1926), additions were made, on the Greek side, of versions of Aristotle, *The Poetics*, and "Longinus" on the Sublime, W. H. Fyfe, Demetrius on Style, W. R. Roberts (in one volume); Athenæus, *The Deipnosophists* (the first of six volumes), C. B. Gulick; Dio, *Roman History* (the ninth and last volume), E. Cary; Hippocrates (the third of four volumes), E. T. Withington; Isæus, E. S. Forster; Josephus (the second of eight volumes, covering *The Jewish War, Books I–III*), H. St. J. Thackeray; *Lyra Græca* (the third and last volume), J. M. Edmonds; Plato, Volume VIII, W. R. M. Lamb; Plutarch, *Moralia* (the first of 14 volumes), F. C. Babbitt; Polybius (the last two of six volumes), W. R. Paton; Strabo, *Geography* (the fourth of eight volumes), H. L. Jones. On the Latin side, translations were added to Cicero, *The Speeches: Pro Lege Manilia, Pro Cæcina, Pro Cluentio, Pro Rabirio Perduellionis*, H. G. Hodge; Cicero, *Tusculan Disputations*, J. E. King; Cicero, *Letters to his Friends* (the first of three volumes), W. G. Williams; Aulus Gellius (the first two of three volumes), J. C. Rolfe.

The great translation of Aristotle which the Oxford Clarendon Press has had under way for years was advanced by the publication of Volume VII, a version of the *Problemata*, by E. S. Forster. In a volume entitled *Epicurus, The Extant Remains*, C. Bailey gave a version of all the extant fragments of Epicurus, the writer so important to the student of Lucretius. O. M. Dalton published *The History of the Franks, by Gregory of Tours, Translated with an Introduction*, two volumes. The introduction treats of Gregory himself, as man and as writer, the Merovingian kingdoms, the Merovingian Church, and Merovingian life.

Part III of the revision of Liddell and Scott, Greek-English Lexicon (see YEAR BOOKS for 1925–1926) appeared. This comprised the articles *διάλειμμα* to *ἐξελευτελιστής*. Parts II and III of Volume II of the great *Lexicon Plautinum*, by G. Lodge, covering the articles *multus* to *parvus*, appeared.

In *The American Journal of Philology*, xlviii, appeared "Marks of Quantity in the Monumentum Antiochenum," J. C. Rolfe; "Polybius of Megalopolis," E. G. Sihler; "Observations on the Indirect Volitive in Latin," W. H. Kirk;

"Cæsar *B. G.* VII, 41, 1: A Defence of the MSS.," S G. Oliphant; "The Single Combat Between Hector and Aias," S. E. Bassett; "The Nature of the Latin Passive in the Light of Recent Discoveries;" Edith F. Claflin; "Queen Eurydice and the Evidence for Woman-Power in Early Macedonia," Grace H. Macurdy; "Freedom of Speech in Ancient Athens," M. Radin; "Greek Fish Names," F. A. Wood; "Verbal Homœopathy and the Etymological Story," E. S. McCartney.

From *Classical Philology*, xxii, may be mentioned "A New Astrological Treatise: Michigan Papyrus No. 1," F. E. Robbins; "The Jurisdiction of the Areopagus," Gertrude Smith; "Poetry in Athenian Courts," A. P. Dorjahn; "The Terminology of 'Gratitude' in Greek," J. W. Hewitt; "Fishing With a Rod in Homer," A. Shewan; "The Use of Slaves by Athenians in Warfare," Rachel L. Sargent; "In the Service of Rome: Letters from the Michigan Collection of Papyri," J. G. Winter.

In *The Classical Journal*, xxii, xxiii, appeared "Some Aspects of the Character of Dido," A. S. Pease; "Popular Methods of Measuring," E. S. McCartney; "Ovid in Exile," R. H. Coon; "The Chronology of Cæsar's Consulship," F. B. Marsh; "Notes on the Pathetic Fallacy in Latin Poetry," A. S. Pease; "Ovid's Æneid and Vergil's: A Contrast in Motivation," F. J. Miller.

The Classical Weekly, xx, xxi, contained the following articles: "The Faith of a Humanistic Philosopher (= Cicero)," Margaret Y. Henry; "Horace, Carmina 2. 6.9–14," C. Knapp; "Analogy, The Vital Principle of Language," E. H. Sturtevant; "Plato's Apology and Xenophon's Apology," L. R. Shero; "Greek Conceptions of Freedom," W. R. Agard; "Bureaucracy and Petty Graft in Ancient Egypt," C. J. Kraemer, Jr.; "Æneid 6.739–751," E. Adelaide Hahn; "The Loeb Classical Library: Twenty-Two Recent Additions," C. Knapp; "The Second Sallustian Suasoria," L. A. Post; "The End, and the Beginning of Plato's Phædo," W. R. Roberts; "Vergil and Some Problems of the Present," M. B. Ogle; "An Attempt to Reconstruct the First Edition of Plato's Republic," L. A. Post; "The Modernity of Greek Literature," L. Van Hook; "Odysseus in the Iliad," P. R. Coleman-Norton.

In *Transactions and Proceedings of the American Philological Association*, lvii, which contained the papers read before the Association at its meeting of December, 1926, the following articles appeared: "A Defense of the Nine-Book Tradition of Pliny's *Letters*," S. E. Stout; "The Last Assessment of the Athenian Empire," A. B. West; "The So-called Emphatic Position of the Runover Word in the Homeric Hexameter," S. E. Bassett; "The Ovidian Authorship of the Lygdamus Elegies," R. S. Radford; "The Literary Influence of Cicero on Juvenal," H. F. Rebert; "Greek and Latin Inscriptions from Asia Minor," D. M. Robinson; "An Interpretation of Apuleius' *Metamorphoses*," B. E. Perry; "Ovidian Vocabulary and the *Culex* Question," F. W. Shipley.

In the *Philological Quarterly*, vi, appeared "An Analysis of Cicero, *Tusculan Disputations*, Book I," C. Knapp; "Early Ecclesiastical Literature and its Relation to the Literature of Classical and Mediæval Times," R. J. Deferrari; "A Study of Terence's Prologues," R. C. Flickinger.

In England, the more accessible repositories of the results of classical study are *The Year's Work in Classical Studies* (see third paragraph of this article), *The Classical Quarterly*, and *The Classical Review*. From *The Classical Quarterly*, xxi, we mention "The Meaning of the *Hippolytus* of Euripides," J. A. Spranger; "The Policy of Clodius," F. B. Marsh; "The Hymn to Hermes," T. L. Agar; "Livy's Fourth Decade," S. K. Johnson; "Authorship of *Hippias Maior*," D. Tarrant; "Archaism in Terence," J. D. Craig; "Technical Terms in Aristophanes," J. D. Denniston; "The Bacchanalian Cult of 186 B. C.," T. Frank; "The Composition of Aristotle's *Politics*," J. L. Stocks; "Donatus-Extracts in MS. *D* of Terence," W. M. Lindsay.

Only two of the longer articles in *The Classical Review* can be mentioned: "*Electra:* A Defence of Sophocles," J. T. Sheppard, "Hot Weather in the Classics," H. J. Rose. There is a great array of articles which, though brief, are of interest and value.

There remains space enough to mention only a very few of the books that have come to the writer's attention. Since it is, in general, clear from the title to which field of classical philology each book belongs, the books are listed in the alphabetical order of their authors' names. In a very few instances a needed word of comment is added: F. F. Abbott and A. C. Johnson, *Municipal Administration in the Roman Empire;* C. D. Adams, *Demosthenes and his Influence;* J. T. Allen, *Stage Antiquities of the Greeks and Romans and Their Influence;* T. Ashby, *The Roman Campagna;* E. Bethe, *Homer, Dichtung und Sage*, Volume III, dealing with "*Die Sage* vom Troischen Kriege"; E. Bevan, *Later Greek Religion;* R. J. Bonner, *Lawyers and Litigants in Ancient Athens;* V. Burch, *Myth and Constantine the Great;* G. M. Calhoun, *The Growth of Criminal Law in Ancient Greece; The Cambridge Ancient History*, Volume I of Plates, Volume V, dealing with "Athens 478–401 B. C.," Volume VI, dealing with "Macedon 401–301 B. C."; A. Carnoy, *La Science du Mot; Traité de Sémantique;* V. Chapot, *Le Monde Romaine;* F. L. Clark, *A Study of the Iliad in Translation;* R. Delbrück, *Die Consulardiptychen und Verwandte*, three parts; D. L. Drew, *The Allegory of the Æneid;* J. Wight Duff, *A Literary History of Rome in the Silver Age, From Tiberius to Hadrian;* H. Ernout, *Morphologie Historique du Latin*, new edition; A. Ferrabino, *L'Impero Atheniense;* R. C. Flickinger, *The Greek Theater and its Drama*, third edition; T. Frank, *An Economic History of Rome*, second edition; Sir J. G. Frazer, *Man, God and Immortality: Thoughts on Human Progress;* T. R. Glover, *Democracy in the Ancient World;* C. B. Gulick, *Modern Traits in Old Greek Life;* Elizabeth H. Haight, *Apuleius and His Influence;* W. R. Halliday, *Greek and Roman Folklore;* Jane Harrison, *Themis: A Study of the Social Origins of Greek Religion*, second edition (little altered); H. B. Liddell Hart, *A Greater Than Napoleon: Scipio Africanus;* B. W. Henderson, *Five Roman Emperors—Vespasian, Titus, Domitian, Nerva, Trajan;* H. Hirt, *Indogermanische Grammatik: Teil III—Das Nomen;* L. W. Hunter and S. A. Hanford, *Æneas (Tacticus) on Siegecraft;* T. Hudson-Williams, *Early Greek Elegy;* Christian Huelsen, *The Forum and the Palatine*, translated by Helen H. Tanzer; M. Hutton, *The Greek Point of View* and *Many Minds* (two works); P. Jouguet, *L'Impérialisme Macédonien et l'Hel-*

lénisation de l'Orient; H. Knorringa, *Emporos: Data on Trade and Trader in Greek Literature from Homer to Aristotle;* F. B. Marsh, *The Founding of the Roman Empire,* second edition; J. L. Myres, *The Political Ideas of the Greeks;* P. Nixon, *Martial and the Modern Epigram;* Pauly-Wissowa, *Real-Encyclopädie der Classischen Altertumswissenschaft,* Volume XIII, Part 2, and Volume III, Part 1 of the Second Series ("Zweite Reihe"): the volumes give the articles "Lokroi" to "Lysimachides," and "Silacenis" to "Sparsus": A. W. Pickard-Cambridge, *Dithyramb, Tragedy and Comedy;* H. W. Prescott, *The Development of Virgil's Art;* F. J. E. Raby, *A History of Christian-Latin Poetry from the Beginnings to the Close of the Middle Ages;* W. Radcliffe, *Fishing from the Earliest Times,* second edition; W. M. Ramsay and A. von Premerstein, *Monumentum Antiochenum: Die Neugefundene Aufzeichnung der Res Gestae Divi Augusti in Pisidischen Antiochia;* D. Randall MacIver, *The Etruscans;* R. Reitzenstein, *Die Hellenistischen Mysterienreligionen nach ihren Grundgedanken und Wirkungen,* third edition; A. Reymund, *History of the Sciences in Græco-Roman Antiquity,* translated by Ruth G. De Bray; P. K. B. Reynolds, *The Vigiles of Imperial Rome;* Gisela M. A. Richter, *The Metropolitan Museum of Art: Handbook of the Classical Collection,* third edition; W. Ritchie, *The Plays of Terence Translated into Parallel English Metres;* Sir R. Rodd, *Homer's Ithaca: A Vindication of Tradition;* H. J. Rose, *Primitive Culture in Italy;* M. Rostovtzeff, *A History of the Ancient World. Volume II, Rome;* H. V. Routh, *God, Man, and Epic: A Study in Comparative Literature, Volume I, Classical, Volume II, Mediæval;* H. A. Sanders and C. Schmidt, *The Minor Prophets in the Freer Collection and the Berlin Fragment of Genesis;* Sir J. E. Sandys, *Latin Epigraphy,* second edition, by S. G. Campbell; L. Séchan, *Études sur la Tragédie Grecque dans ses Rapports avec la Céramique;* D. A. Slater, *Towards a Text of the Metamorphosis* (sic!) *of Ovid;* E. A. Sonnenschein, *The Soul of Grammar: A Bird's-eye View of the Organic Unity of the Ancient and Modern Languages Studied in British and American Schools;* A. Stein, *Der Römische Ritterstand: Ein Beitrag zur Sozial-und Personengeschichte des Römischen Reiches; Thesaurus Linguae Latinæ,* Volume VI, Fasciculus VIII, containing the articles *funus* to *gemo;* H. Tarn, *Hellenistic Civilization:* U. von Wilamowitz-Moellendorff, *Die Heimkehr des Odysseus:* C. Wunderer, *Polybius: Lebens-und Weltanschauung aus dem Zweiten Vorschristlichen Jahrhundert;* Thaddeus Zielinski, *The Religion of Ancient Greece: An Outline,* translated by G. R. Noyes.

PHILOLOGY, MODERN. The most notable event of the year in this field was the completion of the *New English Dictionary on Historical Principles,* popularly, but erroneously, known as the *Oxford English Dictionary.* The collection of the material for this great work was begun in 1857 when the Philological Society of England appointed a committee to list words not to be found in existing dictionaries. Herbert Coleridge was the first editor and it was under his direction that the system of volunteer readers was organized. But after the death of Coleridge in 1861 interest in the undertaking declined, and no attempt would probably have been made to revive it had it not been for the superior administrative ability of Dr. James A. H. Murray, a Scottish scholar, who was appointed editor of the new dictionary in 1879, in the face of violent opposition from the University of Oxford. The first section of this great work was issued in February, 1884, and since then parts have appeared at regular intervals. It should also be remarked that the plan followed in presenting the material reveals no innovations of any importance. Thus, the idea of illustrating or supporting the meanings of words by quotations had been introduced several centuries ago, and even the desirability of doing this on historical principles had been proved in such works as the great French dictionary of Littré.

The second movement to be noted concerns language teaching in America and is unfortunately of a negative character. It is the tendency toward separation of the several branches of the teaching and study of the modern languages which is viewed with much apprehension by some of our leading scholars. In an address on the "Coördination of the Teaching of French with that of the Other Romance Languages" delivered by Professor de Onís of Columbia University before the Fifth Congress of the French Language on April 21 and published in the *Romanic Review* (pp. 297–305), the grave dangers of such a movement are ably pointed out. Notwithstanding that he is a professor of Spanish, in which branch this tendency first manifested itself, Professor de Onís inveighs against this spirit which may possibly mean the disruption of language work in our American institutions of learning. It is to be earnestly hoped that our misguided enthusiasts will heed the words of warning pronounced by one whose broad experience qualifies him to speak.

GENERAL. As an indication of the revolution being brought about in the more or less technical vocabularies of modern languages as a consequence of scientific progress, Mr. G. W. Bragdon pointed out in 1927 in the *New York Times* how for the first time in centuries the mechanization of ships has almost over night rephrased the language of the sea. When we consider that the vocabulary relating to the horse and buggy, and other attributes of our social life still common a quarter of a century ago, is going the way of archery and other obsolete vocations, we may well understand what significant changes the future has in store for us. Thus, S. Gernsback's Radio Encyclopedia (N. Y.)[a] and the *Handbook* of the British Broadcasting Corporation (London) initiate us into an extensive vocabularly in the making.

Studies in primitive anthropology and sociology include John Murphy, *Primitive Man* (N. Y.); H. J. Massingham, *Downland Man* (N. Y.); G. M. Janes, *Man and Society* (Menasha, Wis.); Griffith Taylor, *Environment and Race* (N. Y.); Ellsworth Huntington, *The Human Habitat* (N. Y.), the story of how mankind has adapted itself to various geographical conditions; and Paul Radin, *Primitive Man as Philosopher* (N. Y.).

Of a comprehensive nature is the first volume of a new twelve-volume encyclopædia of arts and sciences, history and biography, religions, nations, races, customs, and institutions, issued by a group of Catholic scholars under the title of *Universal Knowledge* (N. Y.). Following somewhat the same lines is Clement Wood's *Outline of Man's Knowledge* (N. Y.). More technical in character are Miller Christy, *Catalogue of the Bryant and May Museum of Fire-Making Appliances* (London), which gives some account of every known method of fire-making from the earliest times; the Medici Society's volume on *Knives and Forks* (London) recording the changes in their style and use throughout history; Mary Symonds and L. Preece, *Needlework Through the Ages* (London); Professor Fleming's *Encyclopædia of Textiles* (London), containing a historical introduction and 300 plates of the finest examples of textiles, from the earliest times; Otto Hoever, *Encyclopædia of Ironwork* (London); the British Ministry of Labor's *Dictionary of Occupations* (London), in which 16,000 occupations are listed; and A. R. Burns, *Money and Monetary Policy in Early Times* (N. Y.), a new volume in the "History of Civilization" series.

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[a] When no date is given, it is understood that the work in question appeared in 1927.

The index volume of Dr. James Hastings' *Encyclopædia of Religion and Ethics* (N. Y.) renders this important work more accessible to scholars. Other works dealing with the history of religions include a new volume of the series *Mythology of All Races* (*Finno-Ugric, Siberian*), by Uno Holmberg (Boston); E. E. Kellett, *Story of Myth* (London) which shows the main psychological elements that have contributed to the formation and development of mythology; B. C. A. Windle, *Religions Past and Present* (N. Y.), an elementary account of comparative religion; and F. T. Miller, *World's Strange Religions* (N. Y.), a study in six volumes.

More particularly linguistic in character are M. H. Liddell, *The Physical Characteristics of Speech-Sound, III* (Lafayette, Ind.), a volume of investigations on the energy frequency ratios of vowels, issued by Purdue University; C. Callet, *Le Mystère du langage* (Paris, 1926), dealing with the evolution of primitive sounds; P. M. Groth, *Kulturwandel und Bedeutungswandel* (Rudolstadt, 1926); Roland G. Kent, *The Textual Criticism of Inscriptions* (Phila.), a publication of the Linguistic Society of America; B. Migliorini, *Dal nome proprio al nome comune* (Geneva); and W. Giese, *Anthologie der geistigen Kultur auf der Pyrenäenhalbinsel* (Hamburg-Berlin), relating especially to the Middle Ages. Curious particulars of the science of algorism and of the use of the abacus are discussed by Florence A. Yeldham in *The Story of Reckoning in the Middle Ages* (London). Other surveys of mediæval civilization include C. G. Crump and E. F. Jacob, *The Legacy of the Middle Ages* (N. Y.); P. Boissonade, *Life and Work in Mediæval Europe* (N. Y.); and Martha J. R. Teel, *Twelfth Century Characters and Characteristics* (Boston).

INDO-IRANIAN. A. A. MacDonell, *India's Past* (N. Y.) contains an excellent survey of the literature, religions, languages and antiquities of that country. A. Waley, *A Pageant of India* (Boston) is an outline of Hindu history beginning with Buddha and Alexander of Macedon. The second volume of S. Radhakrishnan, *Indian Philosophy* (N. Y.) is devoted to a discussion of the six Brahmanical systems. Religion forms also the subject of S. N. Dasgupta, *Hindu Mysticism* (Chicago); and P. Yevtic, *Karma and Reincarnation in Hindu Religion and Philosophy* (London). The following studies on Buddha and Buddhism are deserving of consideration: E. J. Thomas, *The Life of Buddha as Legend and History* (N. Y.); A. F. Herold, *Life of Buddha* (N. Y.) translated from the French by P. C. Blum; *The Story of Buddha and Buddhism* (Phila.) edited by Brian Brown; K. L. Reichelt, *Truth and Tradition in Chinese Buddhism* (Shanghai, China), being a study of the Chinese Mahayana Buddhism; and J. E. Ellam, *The Religion of Tibet* (London), which is a scholarly but popular account of the peculiar form of Buddhism known as Lamaism.

Of a literary character are J. E. Abbott, *Bhanudas* (N. Y.), being a translation from the *Bhaktavijaya;* and Gwendolene Goodwin, *Anthology of Modern Indian Poetry* (London). J. F. Blumhardt, *Catalogue of the Hindustani Manuscripts in the Library of the India Office* (N. Y.) will be of great value to scholars.

With respect to Persia, mention should be made of C. Huart, *Ancient Persia and Iranian Civilization* (N. Y.); and a new edition of *The Rubaiyat of Omar Khayyam* (Boston), translated by Edward Fitzgerald.

CELTIC. In their eagerness to uphold the cause of their country, Irish enthusiasts, neglecting even the rudiments of philology, boldly bring forth year after year publications that are almost absurd in the extravagance of their pretensions. For example, a writer of worth, Seumas MacManus, in an article on "Ireland is Re-Learning its Forgotten Tongue," published in the *New York Times* of Jan. 30, 1927, makes the extraordinary assertion that Celtic, Hebrew and Sanskrit "are the three root languages of the Aryan group"! Likewise Benedict Fitzpatrick, not satisfied with his own *Ireland and the Making of Britain* (N. Y.), takes for his second work the yet more ambitious title of *Ireland and the Foundations of Europe* (N. Y.)! Though there are excellent courses on the history of the Irish language offered in both winter and summer terms by the educational institutions of Ireland, they seem as yet only to be attended by foreigners. On the other hand, Eleanor Hull, Secretary of the Irish Texts Society, has recently published a *History of Ireland and Her People to the Close of the Tudor Period* (London) which can be commended for its scholarship as well as for its style. Likewise a valuable contribution is A. H. Krappe, *Balor with the Evil Eye* (N. Y.), a publication of the Institut des Études Françaises.

Other scholarly works include C. H. Slover, *Early Literary Channels between Britain and Ireland* (Austin, Tex.), a doctoral dissertation of the University of Chicago, discussing the relations between Britain and Ireland preceding the twelfth century; the same author's "William of Malmesbury's *Life of St. Patrick*," published in *Modern Philology* (Chicago); and A. H. Krappe, "The Fighting Snakes in the *Historia Britonum* of Nennius," published in the *Revue Celtique* (Paris). Works of historical interest include F. E. Ball, *The Judges in Ireland, 1221–1921* (N. Y.), a history of English appointees; and E. Curtis, *Richard II in Ireland, 1394–5, and Submissions of the Irish Chiefs* (N. Y.), containing letters in the original Latin with English translation. Among contributions to folklore are Lady Gregory, *The Kiltartan History Book* (London); and *The Midnight Court and the Adventures of a Luckless Fellow* (N. Y.); translated from the Gaelic by P. A. Ussher. Dr. G. F. Black, of the New York Public Library, provides an excellent bibliography in *Macpherson's Ossian and the Ossianic Controversy* (N. Y.).

Scottish Gaelic and Welsh are represented in A. Polson, *Our Highland Folklore Heritage* (Inverness), a collection of popular beliefs and stories; Sir James Wilson, *The Dialects of Central Scotland* (N. Y.) containing also a vocabulary; A. Morgan, *Rise and Progress of Scottish Education* (London); T. M. Chotzen, *Recherches sur la Poésie de Dafydd ab Gwilym, Barde gallois du XIV*e *Siècle* (Paris); Mary Salmon, *A Source Book of Welsh History* (N. Y.), for students and teachers; and J. Baudiš, *Grammar of Early Welsh* (London), containing in its first part a sound study of phonology. R. S. Loomis, *Celtic Myth and Arthurian Romance* (N. Y.) discusses the vital contribution which Arthurian romance makes to the study of Irish and Welsh mythology. W. J. Entwistle, *The Arthurian Legend in the Literature of the Spanish Peninsula* (London) contains an interesting and exhaustive research in the introduction, history and influence of these romances in Spain. Finally, Lucy A. Paton, *Les Prophécies de Merlin* (N. Y.) includes in the first volume an Introduction and Text, and in the second Studies in the Contents, in which a curious phase of human thought is presented in a very scholarly manner.

SLAVIC. Prince D. S. Mirsky's *History of Russian Literature* (N. Y.) extends from the earliest times to the death of Dostoyevsky in 1881. This volume not only complements his recent one on contemporary Russian literature, but also contains a satisfactory discussion of the decline of the novel, especially in the '70's. Other contributions deserving mention are *Russian Poetry* (N. Y.), chosen and translated by Babette Deutsch and A. Yarmolinsky; Krylov's *Fables*, translated by B. Pares (N. Y.); and C. A. Manning, *I. A. Goncharov*, published in the *South Atlantic Quarterly*.

GERMANICS. The *Germanic Review*, published by the Department of Germanic Languages of Columbia University, began in its April number the publication of an "American Bibliography of Germanic Languages and Literatures." Three sections of this useful bibliography have now been published by H. G. Wendt and F. W. J. Heuser. Other important contributions to this review include M. B. Evans, "The Passion Play of Lucerne"; and R. H. Fife, "The Place of Biography in German Literary History." A useful dictionary is the new edition, much enlarged, of J. Bethell, *German-English and English-German Commercial Dictionary* (N. Y.). *Goethe's Faust* (London), is an excellent verse-translation done in the original metres by W. H. Van Der Smissen.

The American Scandinavian Foundation has issued recently an English version of *Norse Mythology* (N. Y.) by P. A. Munch and M. Olsen. Among useful works in the field of Scandinavian may be mentioned A. H. Krappe, "An Oriental Source of the Icelandic Version of 'Godfather Death'," published in *Scandinavian Studies and Notes;* E. V. Gordon, *Introduction to Old Norse* (N. Y.), containing selections for reading; S. Jonsson, *Primer of Modern Icelandic* (N. Y.); and H. V. E. Palmblad, *Strindberg's Conception of History* (N. Y.), a doctoral dissertation of Columbia University.

As for Dutch, J. F. Bense, *Anglo-Dutch Relations* (N. Y.) supplies a historical introduction to a dictionary of the low Dutch element in the English vocabulary.

ENGLISH. Valuable bibliographies include A. G. Kennedy, *A Bibliography of Writings on the English Language* (New Haven, Conn.) extending from the beginning of printing to 1923; and the catalogue prepared by A. W. Pollard and G. R. Redgrave for the Bibliographical Society of England, which attempts to record every English book known to have been printed up to the end of 1640. The *Collected Essays of Henry Bradley* (Oxford) consists of articles and essays, by one of the editors of the aforementioned *New English Dictionary*, on lexicography, place-names, language and literary history. The new and enlarged edition of the *Dictionary of Anonymous and Pseudonymous English Literature* (London), by Dr. James Kennedy, W. A. Smith, and A. F. Johnson, has now reached the end of the letter G (vol. ii).

The twenty-seventh volume of the Mediæval Library consists of a verse-translation of *Beowulf* by D. H. Crawford (N. Y.). Other works dealing with the Anglo-Saxon period of England include M. H. Turk; *Anglo-Saxon Reader* (N. Y.); Marjorie and C. H. B. Quennell, *Everyday Life in Anglo-Saxon, Viking and Norman Times* (N. Y.); and A. Weigall, *Wanderings in Anglo-Saxon Britain* (N. Y.), a historical study of the period between the sixth and eleventh centuries.

The later mediæval age is studied in such works as Hilaire Belloc, *History of England* (N. Y.) of which the second volume deals with the period extending from 1066 to 1348; Sarah H. Benton, *Life of William the Conqueror* (N. Y.) in which the Norman Duke is portrayed as a bandit; G. Home and E. Foard, *Mediæval London* (N. Y.); *Documents Illustrating the History of Civilization in Mediæval England* (N. Y.), translated and edited by R. T. Davies; W. A. Morris, *The Mediæval English Sheriff to 1300* (N. Y.); and the ninth volume of *Oxford Studies in Social and Legal History* (Oxford) which consists of a study on the *Social Structure of Mediæval East Anglia*, by D. C. Douglas. Mediæval philosophy and religion form the subject of C. R. S. Harris' two volumes on *Duns Scotus* (N. Y.); C. K. Brampton, *De Imperatorum et Pontificum Potestate* of William of Ockham (N. Y.); R. L. Poole's edition of *Ioannis Saresberiensis Historiae Pontificalis* (N. Y.); and John Dickinson's translation of *The Statesman's Book of John of Salisbury* (N. Y.), containing the fourth, fifth and sixth books, and selections from the seventh and eighth books of the *Policraticus*.

Early English literature is represented in *Floris and Blancheflour*, a middle-English romance edited by A. B. Taylor (N. Y.); J. M. Manly, *Chaucer and the Rhetoricians* (Oxford); G. H. Cowling, *Chaucer* (N. Y.), a critical study; R. L. French, *A Chaucer Handbook* (N. Y.); Margaret Schlauch, *Chaucer's Constance and Accursed Queens* (N. Y.), an excellent study in literary sources; W. C. Curry, *Chaucer and the Mediæval Sciences* (N. Y.); *The Nun's Priest's Tale* (N. Y.), edited by K. Sisam; and Eleanor P. Hammond, *English Verse Between Chaucer and Surrey* (Durham, N. C.), containing well-chosen examples with bibliographies and glossary.

Contributions to the Reformation period include W. J. Lawrence, *The Physical Conditions of the Elizabethan Public Playhouse* (Cambridge, Mass.); the same author's *Pre-Restoration Stage Studies (ib.)*; E. Legouis, *Edmund Spenser* (N. Y.), consisting of lectures delivered at Johns Hopkins University; Kathleen M. Lynch, *The Social Mode of Restoration Comedy* (N. Y.); H. E. Rollins, *The Paradise of Dainty Devices, 1576–1606* (Cambridge, Mass.), a reprint of the most popular miscellany published during the reign of Elizabeth; B. Steel, *O Rare Ben Jonson* (N. Y.); and the third volume of the works of the same author, edited by C. H. Herford and P. Simpson (N. Y.).

On the English language we have G. P. Krapp, *The Knowledge of English* (N. Y.); and the same author's *Comprehensive Guide to Good English* (N. Y.), containing studies on pronunciation, the use of the dictionary, etc. Further contributions to American English include W. A. Craigie, *The Study of American English* (N. Y.), an S. P. E. Tract; and H. E. Palmer, *Dictionary of English Pronunciation with American Variants* (N. Y.), giving the pronunciation of about 10,000 words.

Of a practical character are W. A. Craigie, *English Spelling* (N. Y.); J. Bechtel, *Errors in English* (Phila.), revised by Reese James; Sophie C. Hadida, *Pitfalls in English and How to Avoid Them* (N. Y.); *Hugo's How to Avoid Incorrect English* (Phila.); R. W. Brown, *Materials for Word Study* (New Haven, Conn.), a manual of roots and derivatives; a new edition of George Crabb's *English Synonyms Explained* (N. Y.); O. Jespersen, *On Some Disputed Points in English Grammar* (N. Y.); and R. Bridges, *English Handwriting* (N. Y.), being S. P. E. Tracts, Nos. 25 and 28. Studies on vocabulary include R. W. Walter, *The Inglis Tests of English Vocabulary* (N. Y.); *The Winston Simplified Dictionary* (Phila.), edited by W. D. Lewis, H. S. Canby, and T. K. Brown, Jr.; F. G. and H. W. Fowler, *The Pocket Oxford Dictionary* (N. Y.), the American edition revised by G. Van Santvoord; and P. D. Hugon, *Morrow's Word-Finder* (N. Y.).

Among works of a miscellaneous character are E. Legouis and L. Cazamian, *History of English Literature* (N. Y.) of which the second volume, translated by W. D. MacInnes, covers the period from 1660 to 1914; A. Treneer, *The Sea in English Literature* (London), from Beowulf to Donne; P. L. Dickenson, *Outline History of Architecture of the British Isles* (Boston); G. H. West, *Gothic Architecture in England and France* (N. Y.), a second edition; C. W. Budden, *English Gothic Churches* (N. Y.); J. Pulver, *Biographical Dictionary of Old English Music* (N. Y.), *Encyclopædia of English Furniture* (N. Y.), edited by O. Brackett; C. F. Smith, *Book of Chanties* (Boston) containing the authentic words and music of the best of the sailors' chanties, together with the history of each song; and A. Ponsonby, *English Diaries* (N. Y.), second series, a review extending from the sixteenth to the twentieth century.

Romance, General. The most complete bibliography of Romance philology published is that of Dr. Pauline Taylor which appears annually in the *Romanic Review* (N. Y.). That relating to the year 1926, for example, may be found in the July-September and October-December numbers, (pp. 278–291; 366–380), and is divided into eleven parts with addenda. The *Publications of the Modern Language Association of America* also contain annually an *American Bibliography* consisting of contributions of Americans to the subject. Thus, the 1926 bibliography was prepared by Professors H. C. Lancaster and J. P. W. Crawford and appeared on pages 30–45 of the above review.

Special attention should be called to the article of Professor Daniel Mornet of the University of Paris, which appeared in the *Romanic Review* (pp. 103–113) under the title *Philosophie de la Littérature ou Histoire de la Littérature* Therein the author not only defends the nationalistic outlook in literary research as well as the so-called *fiche* system, but also criticizes attempts to build comparative literature upon unproven international influences.

R. M. Merrill's *List of American Doctoral Dissertations in the Romance Field, 1876–1926,* which was published by the Institut des Études Françaises (N. Y.), contains in the more than 500 titles listed an excellent survey of the evolution of Romance scholarship in the United States during the period indicated.

French. C. Sprietsma, *Thèses de lettres à Columbia University,* which appeared in the *Revue des Cours et Conférences* of the University of Paris (pp. 766 etc.), supplies an interesting discussion of the doctoral dissertations in this field presented at the above university.

The most valuable contribution of the year is in all probability Joseph Bédier, *La Chanson de Roland* (Paris). The great critic discusses therein the origin and development of the *Chanson,* its language, versification, etc. Other important works relating to Old French are Jessie Crosland, *Raoul de Cambrai* (London), an excellent translation of the feudal epic; Eunice R. Goddard, *Women's Costumes in the French Texts of the Eleventh and Twelfth Centuries* (Baltimore), a worthy dissertation of Johns Hopkins University; E. S. Murrell, *Girart de Roussillon and the Tristan Poems* (Chesterfield), being an attempt to determine the nature of the legend of Girart; and J. L. Perrier, *Le Siège de Barbastre* (Paris), an edition of the text. K. Glaser, *Altfranzösisches Lesebuch des späteren Mittelalters* (Halle) is an excellent introduction to the literature of this period. Other contributions of importance are A. Hilka's new edition of W. Foerster's *Kristian von Troyes Yvain* (Halle); E. Brugger, *Eigennamen in den Lais der Marie de France,* a splendid contribution issued by the *Zeitschrift für französische Sprache;* J. Bédier, *Tristan and Iseult* (N. Y.) translated by Hilaire Belloc; J. R. Reinhard's excellent edition of *Amadas et Ydoine* (Paris), a thirteenth century romance; B. Edwards, *Classification of the Manuscripts of Gui de Cambrai's "Vengement Alixandre"* (Princeton, N. J.), the 20th volume of the Elliott Monographs; E. C. Armstrong, *The Authorship of the "Vengement Alixandre" and of the "Venjance Alixandre"* (Princeton, N. J.), a contribution of the editor of the Elliott Monographs; Abbé F. Klein, *Sept Comédies du Moyen Age* (Paris); *Saint Joan of Orleans* (N. Y.) consisting of scenes from the fifteenth century mystery translated by Joan Evans; and F. Carco, *The Romance of Villon* (N. Y.), a novelistic biography.

On the French Renaissance we have the valuable survey of J. Plattard, *État présent des études rabelaisiennes* (Paris), which supplies the results of the extensive researches devoted to Rabelais during the past quarter century. A new edition of the famous translation of Sir T. Urquhart entitled *The Complete Works of Doctor François Rabelais* has also appeared (N. Y., 2 vols.). B. Guégan's edition of *Œuvres poétiques complètes de Maurice Scève* (Paris) contains many elucidating notes on the work of the first symbolist poet of France. F. L. Schoell, *Études sur l'humanisme continental en Angleterre à la fin de la Renaissance* (Paris) is devoted to leading humanists such as Erasmus, Ficino and Henri Estienne. E. J. Trechmann is issuing a new translation of Montaigne's *Essays* (Oxford).

As the later periods of French literature (q.v.) will be discussed elsewhere in this volume, we shall therefore mention only a few general and bibliographical works, such as G. L. van Roosbroeck, *Corneille's Early Theories*, published in *Neophilologus* (pp. 166–172); A. Schinz, *Bibliographie critique de Jean-Jacques Rousseau dans les cinq dernières années*, which appeared in *Modern Language Notes* (Baltimore); G. Chinard, *Trois Amitiés françaises de Jefferson* (Paris); Harriet D. Macpherson, *Editions of Beaumarchais in New York City* (N. Y.); and E Seillière, *Pour le centenaire* (Paris), a summing up of the Romantic movement in the last hundred years. Useful to the teacher and student are Marguerite Lips, *Le Style indirect libre* (Paris), being an application of the linguistic theories of F. de Saussure to literary style; B. D. Wood, *Comparative Study of the Vocabularies of Sixteen French Textbooks*, which appeared in the *Modern Language Journal* (N. Y., pp. 263–289); and F. D. Cheydleur, *The American Council French Grammar Test* (Madison, Wis.).

Finally, the following miscellaneous publications may be noted: W. A. Nitze and E. P. Dargan, *History of French Literature* (2d. ed., New York); M. Roques, *Jules Gilliéron, 1854–1926* (Paris), a biographical and bibliographical study of the great dialect scholar; A. B. Kerr, *Jacques Cœur, Merchant Prince of the Middle Ages* (N. Y.); Vicomte G. d'Avenel, *Histoire de la Fortune française* (Paris), a study of private fortunes over a period of seven centuries; the second edition of W. H. Ward's *Architecture of the Renaissance in France* (N. Y., 2 vols.); H. Longnon and Frances W. Huard, *French Provincial Furniture* (Phila.); and E. M. Grant, *French Poetry and Modern Industry* (Cambridge, Mass.), a Harvard dissertation.

Italian. C. H. Grandgent, *From Latin to Italian* (Cambridge, Mass.) is a historical outline of the phonology and morphology of the Italian language. Surveys of Italian literature include E. G. Gardner, *Story of Italian Literature* (N. Y.); and S. Morais, *Italian Hebrew Literature* (N. Y.). St. Francis, whose anniversary was celebrated in 1926, continues to be a subject of interest. P. Sabatier has edited a collection of commemorative essays entitled *St. Francis of Assisi, 1226–1926* (N. Y.). Other works relating to the Saint include a new edition of G. K. Chesterton, *St. Francis of Assisi* (N. Y.); S. Van Santvoord, *Saint Francis* (N. Y.); H. E. Goad, *Franciscan Italy* (N. Y.); and A. G. Little, *Some Recently Discovered Franciscan Documents* (N. Y.).

Miss Katherine Bregy of Philadelphia won the John S. Leahy Dante prize of $1000 with an essay on *Dante and His Vision of Life*. Other works on the great poet include John Jay Chapman, *Dante* (N. Y.); and W. Brewer, *Dante's Eclogues* (Boston), translated into English blank verse. H. Hauvette, *Laure et Pétrarque*, published in the *Correspondant* (Paris), was prepared for the centenary that was celebrated in France. Later periods of Italian literature were represented by L. Landucci. *A Florentine Diary from 1450 to 1516* (N. Y.); Julia Cartwright, *The Perfect Courtier* (2 vols., N. Y.), consisting of the life and letters of Baldassare Castiglione (1478–1529); and a new edition of the translation of *The Autobiography of Benvenuto Cellini* (N. Y.), by J. A. Symonds. Miscellaneous works include H. M. Ayres, The *American Student in Rome* (Rome); H. R. Marraro, *Nationalism in Italian Education* (N. Y.), a publication of the Italian Historical Society of America; R. Rampoldi, *Pavia nel Risorgimento* (Pavia); C. A. Cummings, *History of Architecture in Italy* (2 vols., Boston); the fifth edition of W. J. Anderson, *The Architecture of the Renaissance in Italy* (N. Y.); O. S. Tonks, *History of Italian Painting* (N. Y.); and H. D. Eberlein and R. W. Ramsdell, *The Practical Book of Italian, Spanish and Portuguese Furniture* (Phila.).

Portuguese, Provençal, Rumanian. The second edition of the Spanish translation of F. de Figueiredo's *Características de la literatura portuguesa* (Buenos Aires) has now appeared. *Biblos*, an excellent bibliographical and literary review published by the University of Coimbra, is now in its third year.

W. P. Shepard, *The Oxford Provençal Chansonnier* (Princeton, N. J.), contains an edition, with introduction and appendices, of an important manuscript of the Bodleian library. Mention should be made of C. De Lollis, *Poesie provenzali sulla genesi d'amore* (Rome).

G. Pascu, *La Philologie roumaine dans les pays germaniques et en France, 1774–1922* (Leipzig) is a useful survey. C. U. Clark, *Bessarabia* (N. Y.) is a history of that turbulent country.

Spanish. The Instituto de las Españas has added the following interesting titles to its series: Fernando de los Ríos, *Religión y estado en la España del siglo XVI;* Rebecca Switzer, *The Ciceronian Style in Fray Luis de Granada*, and Iris L. Whitman, *Longfellow and Spain.*

J. Fitzmaurice-Kelly's valuable *New History of Spanish Literature* (London) has now appeared in a complete final revision made by the author just before his death.

The Hispanic Society of America has issued a "micro" edition of Covarubbias, *Tesoro de la lengua castellana* (N. Y.), thus placing at the disposal of students a very rare work of great use to scholars. The *Revue Hispanique*, the official organ of the Society, is now in its seventieth volume.

A contribution that may be considered almost indispensable to Spanish scholars is R. Menéndez Pidal, *Orígenes del español* (Madrid, 1926) which contains a survey of the various dialects of Spain until the end of the eleventh century. T. Navarro Tomás, who lectured last year at Leland Stanford, Columbia and other American universities, is the author of a *Compendio de ortología española* (Madrid).

Other works that deserve mention include the first volume of the *Estudios eruditos in memoriam de Adolfo Bonilla y San Martín (1875–*

1926), of which the first volume has appeared (Madrid); H. A. Deferrari, *The Sentimental Moor in Spanish Literature Before 1600* (Phila.), a doctoral dissertation of the University of Pennsylvania; W. J. Entwistle, *Additional Notes on Luis de León's Lyrics*, published in the *Modern Language Review* (London); E. B. Place, *La casa del placer honesto de Salas Barbadillo* (Boulder, Colo.); Caroline B. Bourland, *The Short Story in Spain in the Seventeenth Century* (Northampton, Mass.), containing a bibliography of the novels from 1576 to 1700; F. Cundall, *The Darien Venture* (N. Y.), an account of the Scottish settlement on the Darien coast of South America in 1698–1700; B. Moses, *The Intellectual Background of the Revolution in South America, 1810–1824* (N. Y.); C. E. Chapman, *History of the Cuban Republic* (N. Y.), extending up to the time of American intervention; W. Thompson, *Rainbow Countries of Central America* (N. Y.), a useful study of economic conditions, customs, etc. of Costa Rica, Nicaragua, Honduras, Salvador, Guatemala, etc.; and A. Hamilton, *A Study of Spanish Manners, 1750–1800* (Urbana, Ill.), as derived from the plays of Ramón de la Cruz.

Phonetics. *Phonetic Transcription and Transliteration* (N. Y.) contains the proposals of the Copenhagen Conference of April, 1925. J. S. Greene and Emilie J. Wells, *The Cause and Cure of Speech Disorders* (N. Y.) is a textbook on stuttering, stammering and voice conditions. With special reference to English, we have H. E. Palmer, J. V. Martin, and F. G. Blandford, *Dictionary of English Pronunciation with American Variants* (N. Y.), supplying the pronunciation of about 10,000 words in common use; and W. A. Craigie, *English Vowel Sounds* (N. Y.), a tract of the Society for Pure English. The third edition of T. Navarro Tomás, *Manual de pronunciación española* (Madrid) is a most welcome work.

PHILOSOPHY. The year 1927 can hardly be said to have been extraordinarily productive as far as philosophic output is concerned. To be sure, philosophical productivity, both qualitatively and quantitatively, was not inferior to that of the average of the preceding years. What the reviewer, however, misses is not so much new books, well written books, as new issues, new approaches. The "new storm of constructive speculation" foreseen last year by Professor Perry in his *Philosophy of the Recent Past* still lies in the bosom of the gods. The lull still continues. It seems as if the contending parties, tired of an internecine intellectual war, had agreed to lay down their arms and decided to bend henceforth their energies towards finding a convenient formula which might serve both as an excuse for the conflict and as a device for saving appearances.

If Hegel were to come to life, he would find, to his great dismay, that his labor to save the civilized world from the disgrace of living without a metaphysics has turned out to be Sisyphean. The metaphysical stone is again on the point of rolling down hill. For if the philosophical literature of 1927 has brought out anything clearly it is that the era of metaphysics, which had been given a new lease of life by the militant fervor of the Neo-Realists, is again on the wane. If problems of being are not made to yield place entirely to problems of knowledge, the recognition is at least growing that the rays of being have to be refracted first through the prism of knowledge. Methodology is thus the new slogan. The method advocated is, however, not the universal method of Descartes; it is not conceived as an organon of reason revelatory of the formal structure of reality. It is taken in a pluralistic sense, it is assigned either the function of devising economical instruments for cognitive technique or else of giving rules to be followed in playing æsthetically satisfying games.

Outwardly this tendency assumes the form of an attack on science. In the front line of this onslaught is to be placed *Science, The False Messiah*, by C. E. Ayres—a book more dazzling than illuminating. The author constantly presents empty-shelled epigrams apparently meant to soothe the nerves of those who were overstimulated by theological narcotics. Functionally science is held to be artificial, inasmuch as it is nothing but a sort of by-product of machine technology, never rising beyond the machine it uses, never touching the central problems of life; structurally it is fictitious—it is a new form of folk-lore and theology. It is evident, that science is made by Mr. Ayres into a scapegoat for the sins committed by the pseudo-scientist, who, for reasons of popular appeal, gives out the facts and laws of science in as final, dogmatic, and inexorable a form as that in which theology used to clothe its beliefs and commandments. Real scientists would rather find a confirmation of their practices in the following words of Santayana than in the pontifical pronouncements of Mr. Ayres: "It is perhaps the best sign of a scientific, as distinguished from a doctrinaire, temper not to lay great store on science itself, that is, on its form, language, and theories, but to keep it plastic in the presence of its existing subject matter and of the spontaneity of the human fancy, which at any moment may suggest new methods of notation, new abbreviations, new syntheses."

A book dealing not so much with the functional side as with the structural side of science is *The Logic of Modern Science*, by P. W. Bridgman. By combining the empiricism of Mach with a kind of physical behaviorism, the author tries to dethrone science from its Platonic heights. Not only the matter of science but also its formal elements have to be relegated to the domain of becoming. The partly logical, partly physical categories, such as cause, time, space, identity, are classed together with strictly physical concepts like mass, velocity, force, energy, electricity, and light. They are shown to be not so much pervasive features of reality exempt from all fluctuations and change, as working tools which have to be constantly reshaped, often even to be discarded, in the course of the advance of science. Every concept has to be defined operationally. We know what a concept is when we know what operations must be performed in order to produce an instance of that concept. Our author's logic turns out to be after all a disguised psychology, for to make measurement and operation the criterion of science is of a piece with the Humian attempt to make observation the limit of knowledge. The true view, certainly, is that of Russell, for whom the rejection of absolute time and space by recent physical science is something not at all motivated by operational considerations. "That we can only observe within relative positions," says Mr. Russell, "is of course true; but science assumes many things that cannot be observed for the sake of simplicity and certainty of causal laws. . . . The inference to absolute time and space must be treated as on a level with any other inductive inference."

Science has also to listen to a good deal of censure in the pages of Mr. Scott Buchanan's *Possibility*. It is a work written, in spots, with great literary charm, and it betrays on the part of its author an uncommon ability to view the vast panorama of theories focally, as well as to vivify their grayness and abstractness by a breath of an appreciative imagination. A few quotations will illustrate his views: "The 'knowledge' which we have in our great scientific systems is not genuine knowledge." "The formulas and laws that science precipitates are its own ghostly memorials. . . . They are hypotheses, imaginative journeys, visions of another world."

In short, science consists in part of folklore, in part of technology, in part of esoteric mysteries (that is to say, in its mathematical and logical aspect). What Mr. Buchanan really aims at with his missile is metaphysics. Science is scolded mainly for its trespassing on the sacred grounds of being. For being in itself, being in its absolute and unconditioned character, can never be grasped in discursive knowledge—the only kind of knowledge that comes to light wherever expression is used. Discursive knowledge is never self-centred, it is always in perspective. It is always a projection from a certain point of reference. When we know anything it is always pertinent to ask in reference to what. Our discursive knowledge is never categorical—we can never be sure that there are no other alternatives to what we know. Such knowledge has for its field not unconditioned reality, but the realm of the possible. And in this respect there is no difference between metaphysics, science, or art. They are all of them the outer garments in which thought clothes itself when it becomes discursive.

In this dialectical æstheticism methodology celebrates its Valpurgian night. Mr. Buchanan frankly states that his aim is not to solve problems. After responsibility for the universe has been thrown to the winds and a release has been obtained from the bonds of reality, intellectual life becomes a midsummer night's dream. The adventurous soul may imagine that it is very easy to fly in this tenuous medium. But unfortunately he will soon find out—if he takes his adventure seriously—that flight in a vacuum is impossible. And he will also find out that it is rather difficult to escape from the iron hand of reality—like Cain he will come to admit that it is impossible to hide from God.

A cognate philosophical impressionism finds expression in two of Santayana's works that were published this year: *Platonism and the Spiritual Life* and *The Realm of Essence*. In the first named work the author tries to kill two birds with one stone. We are told in the first place what the spiritual life is, and in the second place not to identify it with Platonism. The spiritual life is a kind of art for art's sake. It is a carefree life, untrammeled by any obligations, attachments and allegiances, having no axes to grind, and possessing no interest except disinterestedness. On the spiritual plane the mind revels unchecked in its own ghost-like visions, and roams over the infinite, untroubled, timeless and spaceless realms, seeing things "in their eternal aspects" and in "the dimensions in which they are not things but pure essences." The spiritual life is thus made to stand for all those things with which Mr. Santayana himself is in love. His great bugbear is morality, which is always for him a case of special pleading. "Human morality, for the spirit, is but an inevitable and hygienic bias of one race of animals," he writes. Hence the spiritual life will have nothing to do with it, and hence too will it have nothing to do with Platonism. For Platonism is essentially a political and moral philosophy—a philosophy vitiated by humanistic values. "In Platonism as in Christianity, the spiritual life is not pure but incarnate in a particular body of dogma, historical and cosmological: both systems are pledged to the magic ascendancy of certain supernatural powers, posited in order to guarantee certain particular human values"

In *The Realm of Essence* the special objects of the spirit receive a positive and more elaborate treatment. Mr. Santayana returns here to the problems he had set himself in *Scepticism and Animal Faith*, published in 1923. He treats of the essences which the spirit contemplates, and he offers us a careful geography survey of the infinite, eternal and morally neutral realm of the possible, as well as a suggestion as to the nature of the relationship under which its inhabitants enter the human mind. Incidentally he gives us illuminating indications on the status of dialectic as the internal movement of thought and on its relation to the conditions of its environment.

A much more important function than that of an otiose contemplation of a fleeting dream world is assigned by Bertrand Russell to knowledge in his two recent works, *The Analysis of Matter*, and *Philosophy*. Knowledge is here given a decidedly existential bearing. *Philosophy* is largely a more popular rendering of the most important parts of the *Analysis of Matter*. The latter work, on the other hand, is the long-expected sequel of Mr. Russell's *Analysis of Mind*. Mathematical logic, psychology, and physics are summoned here to throw light on a problem which stands to-day in the centre of attention of the philosophical world. The book moves within the circle of ideas displayed in the recent works of Whitehead and Broad. Its main theme is the relation of matter to existence, or the ontological status of the theoretical objects of physics and their relation to common sense perception.

The gulf between physics and perception is due, in Russell's opinion, to our erroneous conceptions of both mind and matter. All our difficulties will disappear as soon as it is realized that "matter is less material and mind less mental than is commonly supposed." Accordingly, the physical world is assimilated to, and made continuous with, the world of our perception, which is the same thing as mind. The universe is composed of only one kind of stuff, namely events. A percept is a mental event occurring in a brain and having, like a nonmental event, both a temporal and a spatial component. What distinguishes mental events as such is the fact that they are subject to the law of association or of the conditioned reflex, which by the way is the characteristic of living bodies. On the other hand, matter, as it appears in recent physical theories, has lost all the characteristics which it has for common sense. "It has become no more than a convenient shorthand formula for stating certain causal laws concerning events." The ultimate constituents of what stands for matter, namely the electrons and protons, have been deprived of substantiality, solidity, impenetrability, identity, and even of permanence. There is nothing to hinder the entrance of the ghostly non-mental events into a happy marriage with the congenially tempered non-mental events.

In spite of the brilliancy of exposition, the reader of these works will have good reason for disappointment. It may be granted that mind and matter may be conceived in Russell's terms, but it is rather difficult to see how this can help us in solving our initial problem. For the solution of our problem it is immaterial whether percepts are regarded as states of mind or as mental events, as long as they have the chief properties of mental states. For Russell, just as for the old-fashioned dualists, what we directly and exclusively know is percepts.

Hardly any traces of realism are left in Russell's philosophy. Russell's metaphysics turns out to be—in spite of his assertions to the contrary—not unlike that of the phenomenalists. In other words it becomes entirely absorbed in epistemology. About the ultimate constituents of the world we are in complete ignorance. His neutral monism sounds suspiciously like the Kantian thing-in-itself. No more than the phenomenalist and the pragmatist has he a right to say that through his analysis he has succeeded in doing away with fundamental metaphysical categories like substance. Scientific categories are in his analysis nothing but descriptive formulas that lend themselves conveniently to purposes of most economical calculation. Within a descriptive system, substance may have the meaning which Russell gives to it, namely of "a series of occurrences linked together in some important way." The reality of substance is, however, hardly touched by this pragmatic definition. The limitations of Russell's philosophy are the limitations of a philosophy which has staked its fortunes without reservation on science. Russell's new books offer a new confirmation of this old truth.

Bibliography: Mortimer J. Adler, *Dialectic;* C. E. Ayres, *Science, the False Messiah;* Bernard Bosanquet, *Science and Philosophy* (posthumous publication); P. W. Bridgman, *The Logic of Modern Science;* Wildon Carr, *Changing Backgrounds in Religion and Ethics;* R. A. F. Hoernlé, *Idealism as a Philosophy;* Joseph Ratner, *The Philosophy of Spinoza* (selections); Bertrand Russell, *The Analysis of Matter, Philosophy, Papers of Bertrand Russell* (selections); George Santayana, *Platonism and the Spiritual Life, The Realm of Essence;* J. E. Turner, *The Nature of Deity;* James Ward, *Essays* (posthumous publication).

PHONETICS. See Philology, Modern.

PHONOGRAPH. See Music.

PHOSPHATE. See Fertilizers.

PHOSPHATE ROCK. During 1927 the American phosphate rock industry, which is centered principally in Florida and Tennessee, experienced no active development of new properties or new processes over the preceding year; although the mines in Tennessee which were subsidiaries of large fertilizer concerns operated at a fairly steady rate throughout the year. There was, however, activity in the construction of plants to produce phosphoric acid direct from phosphate rock by means of electric furnaces, and pyrolitic processes for the purpose of turning out fertilizer compounds similar to those produced in Germany. There was also a movement on the part of State experiment stations, to develop the use of finely ground phosphate to be applied directly as a fertilizer to the soil and used in animal feeding as a substitute for bone products, on account of the growing scarcity and increased value of these materials. The various agricultural and other developments indicated greater activity for the Tennessee fields in the future. According to the U. S. Bureau of Mines, 3,166,102 long tons of phosphate rock were sold in 1927, having a total value of $11,234,863, which represented a decrease in quantity of 1 per cent and an increase in value of 3 per cent, as compared with 1926. Florida continued to lead in the production of phosphate rock, being the source of 83 per cent of the product sold or used by producers in the United States in 1927, or of 2,637,420 long tons, with a value of $8,646,162. Tennessee produced 477,172 tons in 1927, Idaho, 45,260 tons; and Wyoming 6,250 tons. The total imports of phosphate rock into the United States in 1927, amounting to 28,195 long tons, valued at $292,871, showed a marked gain over 1926 of 62 per cent in quantity and 52 per cent in value. The exports for 1927 totaled 918,256 long tons, valued at $4,733,174, an increase of 23 per cent in quantity and 7 per cent in value as compared with 1926. See Fertilizers.

PHOTO-SYNTHESIS. See Botany, under *Physiological Studies.*

PHYSICS. The year 1927 was notable, perhaps even spectacular, in physics. The discovered measurable variation in the length of the day develops the startling fact that the second, our unit of time, is changing. The ether drift reported is refuted—relativity wins another victory. Unprecedented voltages are now available for research with the prospects of six million in the near future, as reported by Rutherford. X-rays are discovered to increase gene mutations incredibly with a wonderful outlook for experimental evolution. Wave mechanics continues to add to its successes by accounting for atomic phenomena without special assumptions. Ultraviolet technology is establishing a new industry. By physically controlled conditions nature's production of petroleum has been duplicated and all its by-products produced synthetically. Aladdin-like powers are being given mankind by the photo-electric cell in devices which mechanically respond to commands that are given by the human voice.

The Nobel prize men for 1927 in physics were Wilson and Compton—Wilson whose wonderful genius visualized for the world the tracks of ionizing particles, permitting us to photograph the tracks and count their number, observing every twist and turn of their paths: Compton whose new theory of X-rays as rapidly moving particles, photons, which bounce from electrons losing energy in the rebound, battled its way into world-wide acceptance, accounting for the diminished wave length in exact accord with experimental measurements.

Adams confirms the red shift of the light of the companion star to Sirius in quantitative agreement with Einstein's theory and Eddington's computation therefrom. Meggers and Kiess find the red shift for light of moderate intensity only, thus far confirming Einstein. Kennedy finds zero result from his duplication of Miller's ether drift experiment, reporting that with Miller's apparatus the reported effect would be simulated quantitatively by very small differences of pressure and temperature within the apparatus, .00004 in pressure, .002° in temperature. With improved technique capable of detecting one-fourth of the previously reported effect, Kennedy finds no evidence of ether drift.

Bucherer was preparing to test whether light from a moving source spreads out in the ether as it would from a source at rest. His set-up is a straight tube transverse to the earth's motion. He will send a beam of light through its centre and it should strike the side of the tube instead of emerging from it, as the tube is carried forward by the earth.

The velocity of light, 299,796 ± 4 km/sec., as determined by Michelson is indebted to Bowie of the U. S. Coast and Geodetic Survey for the accuracy of the base line measurement unprecedented in geodesy, being correct to 1 part in 6,800,000.

Jeans discusses the final or "white dwarf" stars, whose temperature, about a thousand million degrees, ionizes completely the stellar atoms, stripping them of electron shells, so that further contraction of the star is impossible. Bowen concludes that the mysterious "nebulium," long thought to be a strange element in the glowing gases of distant star groups, is merely the metastable state of oxygen and nitrogen. Freeman discovered argon in the sun's corona by spectrum analysis during solar eclipse.

Stormer, in his stereophotograms taken from points in Norway 26 km. apart, finds that the higher auroras, 600 to 800 miles high, were illuminated by the sun throughout, down to 300 km. High auroras were red, blue, or violet; low auroras, greenish yellow. The astonishing result will throw light on the origin of auroras through spectroscopic studies of the conditions holding in the upper air.

Sun power is of perennial interest and discussion. Stewart computes that the sunlight falling on Philadelphia equals in power 100 Niagaras of 4,000,000 horse power each. The sun's total radiant energy, 3.70×10^{33} ergs per second, at one cent per kilowatt hour, would give for the sun's power output a value of a billion dollars each billionth of a second. He discusses the latest physical theory of the origin of the sun's heat and the possibility of its more complete utilization, especially by the discovery of the technique of releasing atomic mass-energy. This discovery rests with the physicists and the faith that it will be accomplished is implicit in the popular mind.

The variable rotation of the earth is the startling headline of the announcement by Boss that the systematic errors in right ascension are attributable to a secular change in the rate of rotation of the earth. The change appears to be periodic with a period of 80 years and a cumulative total drift of 40 seconds in this time. The rhythms are diurnal, monthly; and annual, duplicating the three chief tidal periodicities, indicating that the cause is to be found in the tidal forces acting upon the body of the earth. That a gradual shortening of the mundane day is occurring has long been believed but that the day had a periodic variation is a surprise. The significance is that our unit of time is changing and it may be necessary for us to find a clock more constant than the turning earth, perhaps in the frequency rate of cadmium red radiation.

Standard time was being broadcast twice daily on short wave radio from the Naval Observatory and might be picked up almost anywhere on earth. It was announced as being based on Greenwich mean time. Wade uses the Dufour oscillograph and a stream of electrons to record graphically high-frequency electrical oscillations, each wave of the recorded graph corresponding to one one-hundred-millionth of a second. Beam uses his own new method for short time measurements to determine the order of appearance of various spectral lines and to measure the actual time interval between the appearance of the various lines of Mg, Cd, Zn, H, N, Hg, and He.

The oscillation of the earth's axis caused by the sun's activity is suggested and discussed by Kolisko who regards the earth as a magnet vibrating with an eleven year period in a magnetic field. A field of intensity of 6.5×10^{-8} is found—almost the same magnitude as Newton's gravitation constant. He gives an estimate of the average earth current.

Researches in the nature of the under soils were being made, using the phenomena of the propagation or reflection of Hertzian waves. Howard gives a theory that the earth's heat is evolved when the lightest isotope of an even-numbered atom becomes an odd-numbered atom by losing a proton which in turn goes to form a hydrogen atom.

Stetter publishes new results of atom-shattering or disintegration, confirming his previous work qualitatively and quantitatively. Both Holoubeks and Schmidt contribute to the verification. He uses the Wilson method, the ionization method, and the photographic method, showing samples of the H-ray paths. He also has used a modified form of the mass spectrograph.

Bridgman adduces thermodynamic evidence for his suggestion that, under high pressures at ordinary temperatures, the atomic quantum structure breaks down into electrons and protons, constituting an "electrical gas." He holds that atomic dissociation occurs at high temperatures and low pressures as in the atmosphere of stars, and at high pressures and relatively low temperatures such as we have in the interior of stars, possibly in the sun, certainly in the dark Sirius type stars.

Saha presents an interesting new scheme for showing the periodic system of the atoms, giving a clear and unified view of the entire field, especially the origin of the optical and X-ray structure and the periodic properties of the atoms. While no new principles are involved, the graphic form of presentation is new and vivid.

The Bohr atom has given way to "wave-mechanics" as the centre of interest. The astounding concordance of computed and observed magnitudes gave the Bohr atom an entrenched position, making it the best known of modern theories of science; the wave mechanics gives a most fruitful point of view mathematically effective where the Bohr theory had met the impasse of the unsolved problem of three-bodies. De Broglie and Schrödinger with their beautifully developed wave mechanics have a hypothesis of a mass particle enveloped and surrounded by a wave system. Stimulated by de Broglie, Schrödinger was able to parallel Bohr's explanation of whole numbered radii for permissible orbits and develop wave mechanics with great power. He showed by the Hamiltonian principle how a group of waves follows the path which a mass particle would observe in ordinary mechanics. Both the static and Bohr models are apparently incompatible with the Schrodinger atom, although Sommerfeld says that there can be no thought of giving up the Bohr theory. The newer atom depends upon the change of energy density. If the density is greatest at the centre and slight at the surface, we have the simpler case, and the smaller the sphere, the higher the frequency of fluctuation. More than one mode of vibration may occur in a single sphere. The new atom is electrical, but the charge is not discontinuous and is subject to fluctuations. Pauling claims a direct experimental verification of the form of Schrödinger's "Eigenfunction," finding a function which permits estimation of the electron distribution in atoms and ions and of inter-atomic distances.

While perhaps equally able as the Bohr atom to account for "permissible and forbidden" zones, the Schrödinger atom allows vibration without radiation—a fact which, Bohr had to assume, follows naturally in wave mechanics. The relative intensity of spectrum lines, however, also follows from the new theory—a real triumph. It also replaces the elliptical and circular orbits, provides for the equivalent of the azimuthal quantum number and gives an interpretation of half quantum numbers. Current opinion on present showing favors the Schrödinger atom, but without doubt the Bohr theory will be retained when it is desirable to picturize atomic relations.

If a free electron is considered a fluid with a resonance frequency, this implies that the free electron is attended by a wave train going in the same direction as the electron with wave length dependent on its speed. An experimental discovery of the utmost significance was that of Davison and Germer who found that free electrons are actually accompanied by such wave-trains, diffrangible by crystals, and carrying their electrons wherever they are diffracted. A suggestive analogy is the system of resonances of a vibrating box full of air. It may be recalled that Lodge long ago pointed out that the radial variation of the natural period frequency of a vibrating circular disc follows a law—the equation of which resembles and suggests the radial inverse frequency relations of the Bohr atom.

Jordan shows that the four new forms of quantum mechanics—matrix, Born Weiner, wave mechanics, and the theory of the q-numbers—are special cases of a more general theory. Certainly we may expect current theories to contribute each its own full quota because of the unique mode of attack, toward the ultimate theory of the structure of matter and energy, correlating the two so completely that one may be transformed into the other at will.

It is predicted that electron scattering research opens a new era for atomic physics which will be more concerned with momentum exchange between electrons and matter than with energy exchange. Conditions of electron reflections differ from those of X-ray reflections. The scattering power of atoms is far greater for electrons so that the surface layer of atoms plays a prominent part and a crystal reflects more like a crossed grating than a space lattice. An appreciable range of equivalent wave lengths therefore can be reflected with a fixed angle of incidence through various reflection angles. The contraction factor is equivalent to assuming a refractive index of .7 for the crystal. Hence the angle of maximum reflection is not equal to the angle of incidence referred to the effective crystal plane.

Brilaoun suggests that a bundle of electrons as affected by a magnetic field may permit experiments on the magnetic moment of the Bohr magneton. The spinning electron is treated by Stoner. The doublet character of a 1-valence electron system is accounted for by splitting levels caused by magnetic interaction between the electron and the rest of the atom. Gaudsmit and Uhlenbeck postulated an electron with half a Bohr unit of angular momentum. Since the spin in orbital rotation may be of like or unlike electron, a single level is split into two, for the spinning electron will precess as it moves in its orbit as in a magnetic field. Heisenberg and Jordan show that, with the electron spin and relativity effect taken into account, the true relativity formula is given by the new quantum matrix dynamics.

After experiments in which light from a single vibrating atom (instead of many as in ordinary light sources) is considered, the possibility is advanced by Dempster that the "quantum" may be divided. Falling on a lightly silvered mirror, part of the light was reflected and part passed through. Upon recombining the light, the same patterns and dark bands were produced as from ordinary light.

Aston's new mass-spectrograph yields data determinable to 1 part in 10,000, adjacent lines being separated if the masses differ by 1 part in 650. A great advance is being made of exact atom mass expressed as "packing fractions" or the difference between an atom-mass (on the scale O = 16) and the nearest integer ("mass number") divided by that integer. He finds that the ratio H:O is 1.00778:16; He:O, 4.00216; C:O, 12.0036:16 (final digits uncertain). F and the predominant isotopes of Ne and S have practically integral mass-numbers; tin has 11 isotopes, 4 odd, of which one is an isobar of an isotope of another element (exceptions to announced rules). The packing fractions of the isotopes of Xe and Sn are sensibly identical, contradicting *a priori* theory.

As atoms give line spectra, so molecules give band spectra. A review of Johnson surveys the astonishing advances of the past two years in band spectra, progress which suggests that the time is near for an understanding of band spectra and molecular structure so complete that physical properties of molecules may be computed from known constants and chemical changes placed on a mathematical basis.

Meggers and Burns published studies of the hyperfine structures in the La_{I} and La_{II} spectra and suggested that the moment of momentum of the atomic nucleus is responsible for these hyperfine levels. They have also determined directly the wave length of 350 standard solar lines in terms of neon standards, while Babcock used the interferometer with 507 lines on the same scale. These permit interpolating other lines so that all solar spectral lines may be placed upon the International scale.

Slater deduces the helium spectra by a new method from the wave equation. Variables are not separated, two degrees of freedom are assumed, the method being applied to the wave equation of helium with its six variables, the coordinates of its two electrons. Remarkable agreement is found between computed and observed wave numbers and quantum defects, 24.48 and 24.35 being the observed and computed ionization potentials respectively.

Compton and Doan measured the characteristic wave lengths of Cu and Mo, using a ruled spectrum grating having 200 lines per millimeter. Thibaud studied the spectra of C, Mg, Al, Fe, Cu, and Pb between the limits 140 to 6000 A, using a vacuum spectrograph with a glass grating having 200 lines per millimeter. Hunt, using a similar grating, has studied the K alpha lines of C and Al, and the alpha lines of Cr, Fe, and Cu.

Lawrence and Beams using light pulses of short duration through nicol prisms, conclude that "if light-quanta are of the commonly understood wave nature, they are less than three centimeters in length and an electron absorbs a light-quantum photo-electrically in less than 10^{-10} second." The result is stated to agree with Swann's theory of light and the new quanta-wave theory of Thompson.

New resources of great power were available for physical research. There were in use 2,800,000 volts and a plant was planned to give 6,000,000, approaching the voltage (7,600,000) of ejection of the alpha particle from radium C, exceeding the swiftest beta ray voltage (3,000,000). More than 2,000,000 volts will give X-rays equal to gamma rays in penetration. The extension of X-ray analysis to long-chain compounds was unexpected but welcome in the complex technique of the organics. During the year X-rays were found to produce gene mutations in a high proportion of the germ cells treated, giving biology a new means to speed up experimental mutation incredibly for experimental evolution research.

Tropsch was able to obtain by synthesis every kind of compound present in crude petroleum ranging from gaseous methane to solid paraffin waxes, using water gas as the basis. He obtains liquid motor fuels by the high-pressure hydrogenation of coal or through water gas by catalysts. Gas mixtures like those he makes use of are found in nature, as also are the necessary catalysts. Hence he believes he duplicates nature's production of petroleum. Incidentally the method appears to be the only one which permits us to conclude that nature is still producing it.

Astbury surveys the problem of complex structures from the view point of crystallography and X-ray analysis, noting how in recent years the theory of internal structure has made possible the "gigantic task" of classifying all crystalline substances according to their structural features. The new view is surely an advance *over the old classification by external form.* The great value of crystallography is recognized now that we know that practically every solid thing is crystalline and that electric charges are the binding forces of crystals. Bentivoglio measures the growth of crystals, finding that initial irregularity, where all faces are alike, does not affect the rate of growth of its faces. Misshapen crystals have no tendency to correct irregularity by unequal rates of growth on the faces, but initial differences merely become smaller fractions of the whole. In complex forms unlike faces grow at unlike rates, like faces at the same rate, with uniform concentration of solution. Bentivoglio also has constructed ideal forms for each crystal as they would grow at the rates observed.

Wright compares the behavior of polarized light with that of moonlight to ascertain the composition of the moon's surface. Basalt is missing, but pumice and granite are reported. Coblentz publishes results on the light from decaying woods. Pierantoni finds that germs introduced into the eggs of insects produce light-control mechanisms in the insect's bodies, finding also that light-giving bacteria are present in luminous deep sea fishes.

Wilcox publishes an account of the successful "prevention" of lightning in safeguarding petroleum tanks. Applied physics has solved the problem of lightning "prevention" by wires from which the corona discharges pass, continually neutralizing the charges of the cloud.

A new use is added to the multitude of uses of the electron tube, namely to synchronize the wave phase of alternating currents of power generators widely separated but pooling their current into a common supply.

A theory of ferromagnetism based on atomic magneto-striction confirms the ideal quality of permalloy. Once more lack of faith has been rebuked by actual achievement. Magnetization is found to alter the size of a specimen by a few parts in a hundred thousand, heating the metal, wasting energy as hysteresis loss. Iron lengthens while nickel shortens in the direction of the magnetic axis, so that a rightly proportioned alloy should show no magneto-striction. So it proves. McKeehan states that the computed critical composition lies in the region where the magnetic behavior of permalloy has been found to be the most strikingly abnormal. The easy magnetization of permalloy seems due to the conspiring of iron and nickel atoms to make their magnetic changes in harmony, avoiding shock and energy loss, to which iron and nickel are separately subject.

The year was very fruitful in acoustical research and its practical applications. Theremin in Leningrad produced an astonishing musical instrument based upon the beat notes in electron tubes, in which system the units are so disposed that beautiful music, controlled by motions of the hands in space, is produced of a most unusual quality and modulability. Richardson points out that sound propagation is a new means for research on technology in connection with the physics of the globe. The seismograph and the success with which it records vibrations have suggested internal explosions artificially produced to explore the nature of the crust of the earth and its structure.

Loomis and Hubbard, using super-sound waves and a sonic interferometer, determined sound velocity through liquids, finding, for example, that sound waves travel through pure water at 60 degrees Fahrenheit, at a speed of 4850 feet per second.

Of extraordinary interest and possibilities was Gault's experimental "teletactor" designed to enable the deaf to hear through their finger tips, feeling the components of sound waves instead of hearing them. Amplified vibrations are allotted in frequency groups, operating a diaphragm for each finger—the thumb responding to speech vibrations below 250 per second, the little finger to those over 2000 per second, the other fingers dividing the range between, from 250 to 2000. The amplitude may be made an optimum for each finger. With practice, vowels, consonants, and even the words may be identified.

Whipple's experiments with firing of big guns showed that sound, inaudible at 20 miles' distance, may be heard at a hundred miles as a result of the refraction of sound waves by the Heaviside layer above the earth's surface. In another experiment, a gun shot on the English coast was heard 35 miles away at Birmingham University by a new direct sound-sensitive receiving device.

Making audible the impact of single atoms is an astonishing use of the electron tube amplified. Ortner and Stetter have made hydrogen rays audible by loud speaker, using polonium as a source of alpha rays and paraffin as impacted material, permitting a quantitative count to be made of ejected H-particles. Kranz illustrates the effectiveness of his mechanical harmonic synthesizer by a graphic synthesis of the first forty harmonic components of two separate infinite series. The purpose is the study of sound, but it has general uses as well.

Manville reports that the waves which transmit television may now be impressed as wavy grooves like graphophone records and be used to produce anywhere, as often as desired, the moving scene originally recorded.

Perhaps the outstanding scientific event of the year was the first exhibition of perfected television developed under Dr. Ives and his chief, Dr. Jewett. Full accounts were promptly published and again those who had doubted were confronted with the demonstration of an achievement once considered impossible.

Quite as astonishing is the feat of applied acoustics displayed in the televocal system by which operatorless machinery is controllable by the voice. Wensley states that the spoken words "Open Sesame" and no other combination of sounds will cause a door to open, by a system of selective sound-sensitive relays which makes it possible to start or stop machines, open or close switches, or perform any other operations at will.

In London a train was experimentally started and stopped by radio transmission of the human voice with the words "Off" and "Stop."

The year, finally, was notable for the completion of the first national radio beacon for the first American airway. The beacon consists of a beam of radio which automatically indicates whether the plane is on course, or off to the right or to the left. It is suggested that eventually the radio beacon itself may function to keep the plane on course—surely a fitting control for the new art of aviation on national air highways.

PHYSIOGRAPHY. See Geology.

PIANISTS. See Music.

PIERCE, Henry Clay. American oil pioneer, died in New York on June 27. He was born in Jefferson County, N. Y., in 1849, attended public school until he was 16 years old when he was employed as clerk in a bank at St. Louis, Mo., and that city remained his headquarters for the major part of his career. In 1870 he became distributor for an oil refinery in St. Louis, and three years later established the Waters-Pierce Oil Company. Early detecting the possibilities of oil development in Mexico he extended his operations and in 1896 he had a leading position in the Mexican oil business. He also acquired control of the Mexican Central Railway. The magnitude of Mr. Pierce's operations brought him into contact with banking and financial interests and this developed into a memorable clash. The Standard Oil Company obtained ownership of two-thirds of the Waters-Pierce Oil Corporation stock, but he managed to hold the direction of the company. When the Standard Oil was dissolved under an anti-trust law decision, the Rockefeller group endeavored to put its own representatives at the head of the Waters-Pierce business. Mr. Pierce opposed this move in the courts and succeeded in forcing the sale of the Rockefeller holdings to himself. He was director of many railway, steamship, trust, and fuel companies.

PIGEONS, Flying. See Military Progress.

PIGS. See Livestock.

PIÑA, Juan José de Jesus, Herrara y. See Herrera.

PINE BLISTER RUST. See Botany, under *Plant Diseases.*

PINK BOLL WORM. See Entomology, Economics.

PISTOL LAWS. See Crime.

PITHECANTHROPUS. See Anthropology, under *Physical Anthropology.*

PITTSBURGH, University of. A non-sectarian coeducational institution of higher education, at Pittsburgh, Pa.; founded in 1787. The total autumn enrollment for 1927 was 9923, distributed as follows: college, 2070; engineering, 414; mines, 87; business administration, 665; education, 977; graduate, 764; medicine, 254; law, 260; pharmacy, 442; dentistry, 466; retail training, 15; downtown division, 2255; extension students, 1254. The summer session had a registration of 2432. There were 875 faculty members, of whom 96 were new appointments, as follows: college, 61; education, 6; mines, 1; medicine, 1; law, 2; dentistry, 1; physical education, 2; officers of administration, 2. The library contained about 110,000 volumes. The productive endowment amounted to $1,545,951.60. The year's expenditures were $3,492,233.60. Income from the State Legislature of Pennsylvania was $505,938,295.34. Developments during 1926–27 included the establishment of a department of fine arts; the organization of a division of research in higher education; the establishment of a junior college at Johnstown, Pa., and of the extension centre, at Erie, Pa., under the direction of the University extension division; and progress on the construction of the "Cathedral of Learning." A total of $2,600,000 was also subscribed for the Presbyterian Hospital Unit of the University's medical centre. Chancellor, John G. Bowman, LL.D.

PLAGUE. See Bubonic Plague.

PLANETS. See Astronomy.

PLANT DISEASES, NUTRITION AND PHYSIOLOGY. See Botany.

PLANT QUARANTINES. See Horticulture.

PLATE GLASS INSURANCE. See Insurance.

PLATINUM. It was estimated that the stock of platinum on hand in the United States at the beginning of 1927 was the largest in ten years. At that time the amount of platinum in the hands of domestic refiners amounted to 64,203 ounces, or 45 per cent more than at the beginning of 1926; palladium stocks amounted to 31,950 ounces, or 19 per cent more than in the previous year. The United States production of new metals of the platinum group totaled in 1927 about 4200 ounces of platinum, 3000 ounces of palladium, and 30 ounces of iridium, which was less than in 1926. As a result of the announcement in April, 1927, that the Russian output of platinum was to be sold in the American market through the Amtorg Company, the selling price of platinum, which at the beginning of the year was quoted officially at $112, and which at the end of March was around $101–$103, continued to fall and reached a low of $62.50 by the end of July. The usual fall increase in platinum metals buying for the Christmas trade was not noticeable and the American market was in a somewhat disorganized condition.

Of the imports, which were erratic for the year, the most consistent supplies came from England, while France supplied only a small portion of the total imports for the year. Some shipments were received from Germany, Australia and Canada, and about 3000 ounces of crude platinum were imported monthly from Colombia, the latter country having decreased its output in 1927 to approximately 60,000 ounces, while Canadian nickel refineries showed an increase in both platinum and palladium for the year as compared with 1926. Russia was continuing her policy of building up the platinum industry, but little authentic information was available.

The imports of platinum into the United States, in the form of grains, nuggets, sponge, or scrap, during 1927, amounted to 90,491 troy ounces, valued at $7,480,869, as compared with 87,162 ounces valued at $8,683,359 in 1926. Platinum ingots, bars, sheets, or plates, amounting to 38,053 ounces valued at $3,707,062 were imported in 1927, as compared with 26,585 ounces valued at $2,995,562 which were imported in 1926. See Geology.

The U. S. Bureau of Mines reported that new platinum recovered by refineries in the United States in 1926 amounted to 76,154 troy ounces, while in the same year 38,795 ounces of secondary platinum were recovered by dealers and refineries in the United States.

PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA. An association organized in 1906 by Theodore Roosevelt, Jacob A. Riis, Luther Halsey Gulick and others, for the purpose of binding together in a national body the efforts growing up in various parts of the country to provide safe and adequate areas where children might play under experienced leadership. A staff of field secretaries maintained to assist cities in organizing year-round recreation programmes for children, adults and the community as a whole, to secure municipal appropriations and to strengthen existing programmes, also works to secure state legislation for facilitating the development of municipal recreation programmes. Other phases of the Association's work include: the maintenance of an employment service for recreation workers and a correspondence and consultation bureau where attention is given to letters of inquiry and personal conferences on local work; the supplying of practical suggestions and literature to amateur dramatic groups and the preparation and distribution of programmes for holiday and special day celebrations; and assistance to negro groups in securing recreation opportunities. The community music service assists in organizing music groups, in training volunteers, and in providing an exchange for community music information.

A National Training School was established in 1926 to provide graduate courses in professional recreation training. The National Physical Education service of the Association is active in sponsoring physical education legislation. *The Playground* is its monthly publication, in addition to which there were distributed in 1927 *A Nature Almanac*, *88 Successful Play Activities*, a weekly bulletin service, books and pamphlets on all phases of the play movement, and other handbooks and pamphlets, while a publication *Parks—a Manual of Municipal and County Parks*, was compiled and was practically ready for distribution at the end of the year. The Fourteenth Annual Recreation Congress of the Association was held at Memphis, Tennessee, in October, 1927. The officers for the year were: President, Joseph Lee; treasurer, Gustavus T. Kirby; secretary, Howard S. Braucher. The headquarters are at 315 Fourth Avenue, New York.

PLUMMER, Charles. British historian, died at Oxford, England, September 8. He was born at St. Leonards, Kent, on Jan. 24, 1851, and educated at Tenbury and Oxford. He was elected to a scholarship in Corpus Christi College, Oxford, in 1869, and after becoming a fellow he filled various offices. From 1875 to 1883 he was lecturer in modern history. From 1883 onwards he devoted himself wholly to the study of Anglo-Saxon and Celtic history and literature. He edited a revised text of Sir John Fortescue's *Governance of England* (1889); two of the *Saxon Chronicles* (1889); Bede's *History* (1896); *Lives of the Irish Saints* (1910). He was a member of many learned societies, among them the British Academy and the Royal Irish Academy.

PNEUMONIA. This acute infectious disease is of such severity that it is best treated in the hospital, so that the hospital statistics of the disease have great significance for the general public. All classes of the latter come to the hospitals, rich and poor, young and old, healthy and decrepit, and the virulence of the disease may show remarkable annual variations. Cases are admitted at any period of the disease from the first day to the last stage of the moribund patient. It is not surprising to note the range of mortality, which in the same hospital and under the same conditions of treatment may vary from 16 to 33 per cent. Ordinarily by pneumonia the lobar form is meant, for bronchopneumonia is rather a complication of other infections than a separate disease.

Mortality statistics show that the figures for young and old patients show the greatest differences. In a select body of young and robust individuals like military recruits, there may be no mortality and hardly any treatment is required. At the other extreme of life recovery occurs only in a small minority of those attacked. Under the age of 40 the mortality should not ordinarily exceed 16, while in those over 40 it should be 45. Despite the great improvements in clinical medicine it is difficult to prove that our control of the disease is making much progress and it is also not easy to prove the contrary.

In the *Journal of the American Medical Association* for May 28, Kessel and Hyman of the Mt. Sinai Hospital, New York, publish an article entitled "Treatment of Lobar Pneumonia in Hospitals." Since November 1925 all pneumonia patients admitted have been placed in charge of a pneumonia commission and treated in accordance with a preconceived plan which comprises a "forced" diet of fluid and semifluid dishes, sponge bathing to keep down high temperatures, digitalis to sustain the heart, morphine for pain, restlessness and cough and a special serum. Despite the thoroughness of the treatment and the fact that the mortality may run as low as 16 per cent, the death rate during the season of 1926 was unusually high—about 33 per cent, which is a maximum. This may be explained in part by the usual factors of virulence of the pneumococcus—there were many patients with the deadly "Type III"; late admissions—all admitted with an average of four days of disease before admission succumbed; average high age, etc., etc. Of great interest is the fact that those patients with two lobes involved, including the double pneumonia cases, showed no higher mortality than did those with but a single lobe involved. In other words expressions like "massive" and "double" pneumonia should not carry a death warrant. The serum utilized had not yet shown itself successful.

POETRY. See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; SCANDINAVIAN LITERATURE; SPANISH LITERATURE, ETC.

POLAND. A European republic formed as a result of the War and comprising the territory formerly divided among the three governments, Austria-Hungary, Russia, and Prussia, from the three partitions of Poland in 1772, 1793, and 1795, which were confirmed by the Congress of Vienna in 1815. After the World War (1914–18), Poland, in addition to this original territory known as Congress Poland, acquired Prussian Poland, Polish Galicia, Upper Silesia, and a portion of the Vilna territory. Capital, Warsaw.

AREA AND POPULATION. The total area, according to recent estimates, is 149,958 square miles, and the population, according to the first official census of the Polish Republic in 1921, 27,176,717; estimated in 1926, 29,249,000. The largest cities with their populations at that census were: Warsaw, 936,713; Lodz, 451,974; Lvow, 219,388; Poznan, 184,756; Cracow, 183,706, and Wilno, 128,954. The Polish nationality represents two-thirds of the population and is followed in numerical order by the Ruthenians and Jews.

EDUCATION. Elementary instruction is compulsory and free and all other grades of education are free. According to the latest available statistics the elementary schools numbered 27,414, with 66,176 teachers and 3,237,340 pupils. Secondary schools numbered 778, with 14,681 teachers and 219,978 pupils. There were also 195 colleges for teachers with 1931 teachers and 34,437 pupils, and 850 technical schools with 110,000 pupils. The universities and institutions of university rank numbered 17 with 954 professors and 37,125 students.

PRODUCTION. The two principal occupations of the country are agriculture and stockraising, engaging about 65 per cent of the inhabitants. The following table from the *Statesman's Year Book* for 1927 shows the area in acres and the yield in metric tons of the chief crops in 1926:

Crops	*Area (acres) 1926*	*Yield (metric tons) 1926*
Wheat	2,745,000	1,281,300
Rye	12,058,000	5,011,400
Barley	3,080,000	1,554,600
Oats	6,502,000	3,049,800
Potatoes	5,960,000	24,637,900
Sugar beets	461,000	3,724,900

Other important crops are hops, hemp, tobacco, and chicory. The last livestock census showed 3,201,166 horses, 7,894,586 cattle, 2,178,216 sheep, and 5,170,612 pigs.

There are eight industrial centres in Poland, Warsaw, Lodz, Cracow, Dabrowa, Katowice, Bialystock, Czestochowa, and Drohobycz. In the textile industry on Oct. 1, 1926, there were 2,161,992 spindles and 29,894 looms in the manufacture of cotton, and 447,367 spindles and 2073 looms in the manufacture of wool. Other important industries are paper manufactures of various kinds, chemicals, timber, iron, and naphtha. Seventy sugar refineries produced 490,000 tons of sugar in 1926–27.

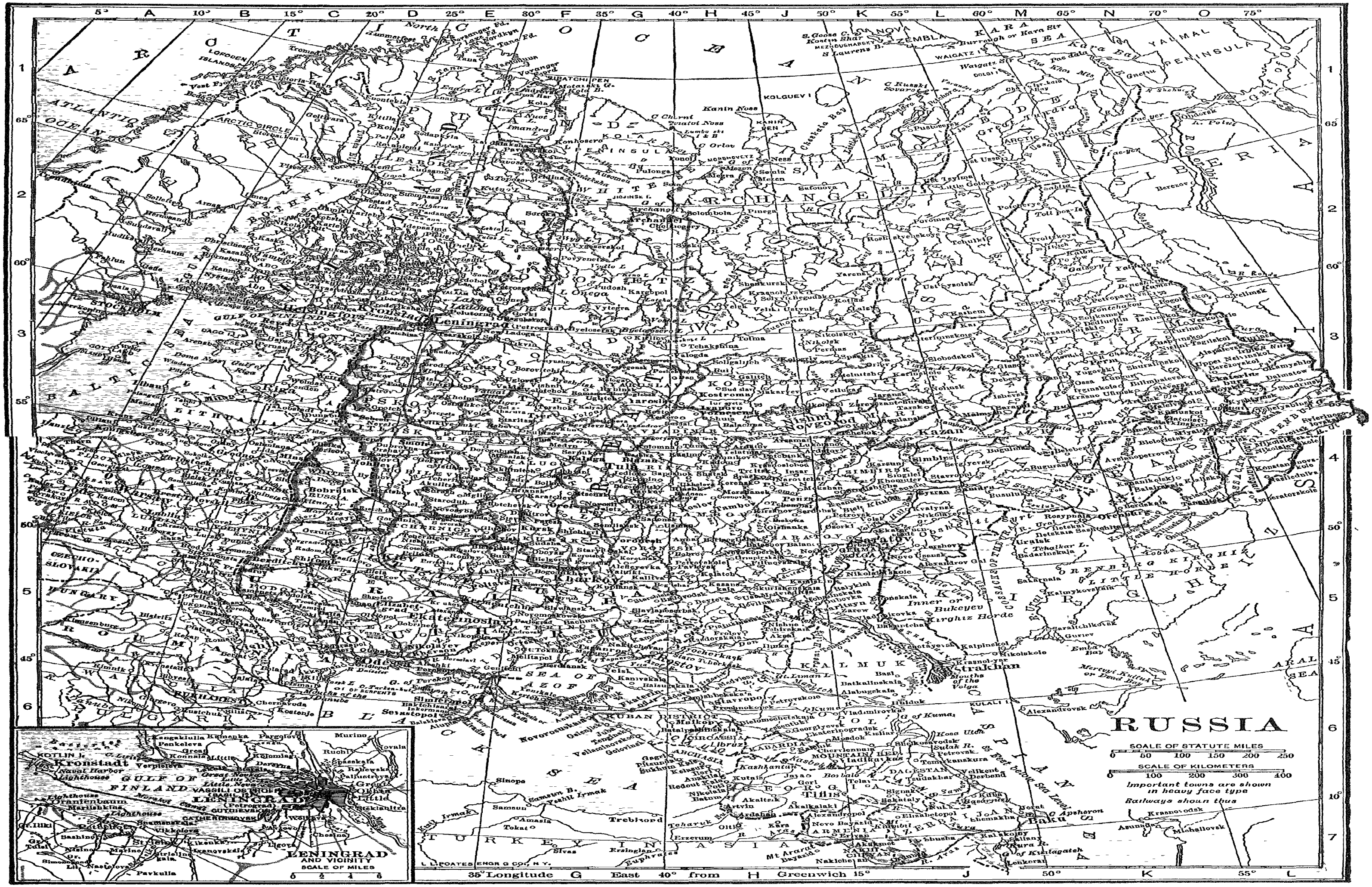
The accompanying table shows the output in metric tons, of the more important mining and metallurgical industries:

POLISH MINING AND METALLURGICAL PRODUCTION
[*Monthly average, in 1,000 metric tons*]

Commodity	*Jan.–June, 1927*	*July–Sept., 1927*
Coal	3,000	3,200
Potassium salts	24	30
Common salt	27.5	35
Iron ore	40	46
Pig iron	46	54
Steel	100	110
Rolled materials	70	81
Zinc	12	13

Polish production of 796,080 metric tons of crude petroleum in 1926 showed a slight decline from the 1925 output of 811,910 tons. This decline, however, was partly compensated by decreased waste, so that the net production in 1926 amounted to 754,220 tons, compared with only 745,000 in the preceding year. There was also a decline in stocks—from 102,160 tons at the beginning of 1926 to 48,150 at the end of the year. The number of producing wells increased from 1949 in 1925 to 1972 in 1926, but the average daily production per well decreased from 411 kilos to 400 kilos during the same period.

COMMERCE. Imports for 1927 amounted to 1,680,552,000 gold francs, and exports to 1,459,379,000 gold francs, according to figures supplied by the U. S. Department of Commerce. There was thus, for the year, an adverse balance of 221,173,000 gold francs, or $24,815,000. This amount was approximately compensated by remittances from Polish emigrants to the United States, Canada, France and England, about $25,000,000 annually. While no data are avail-


RUSSIA
SCALE OF STATUTE MILES
0 50 100 150 200 250
SCALE OF KILOMETERS
0 100 200 300 400
Important towns are shown in heavy face type
Railways shown thus
LENINGRAD AND VICINITY
SCALE OF MILES
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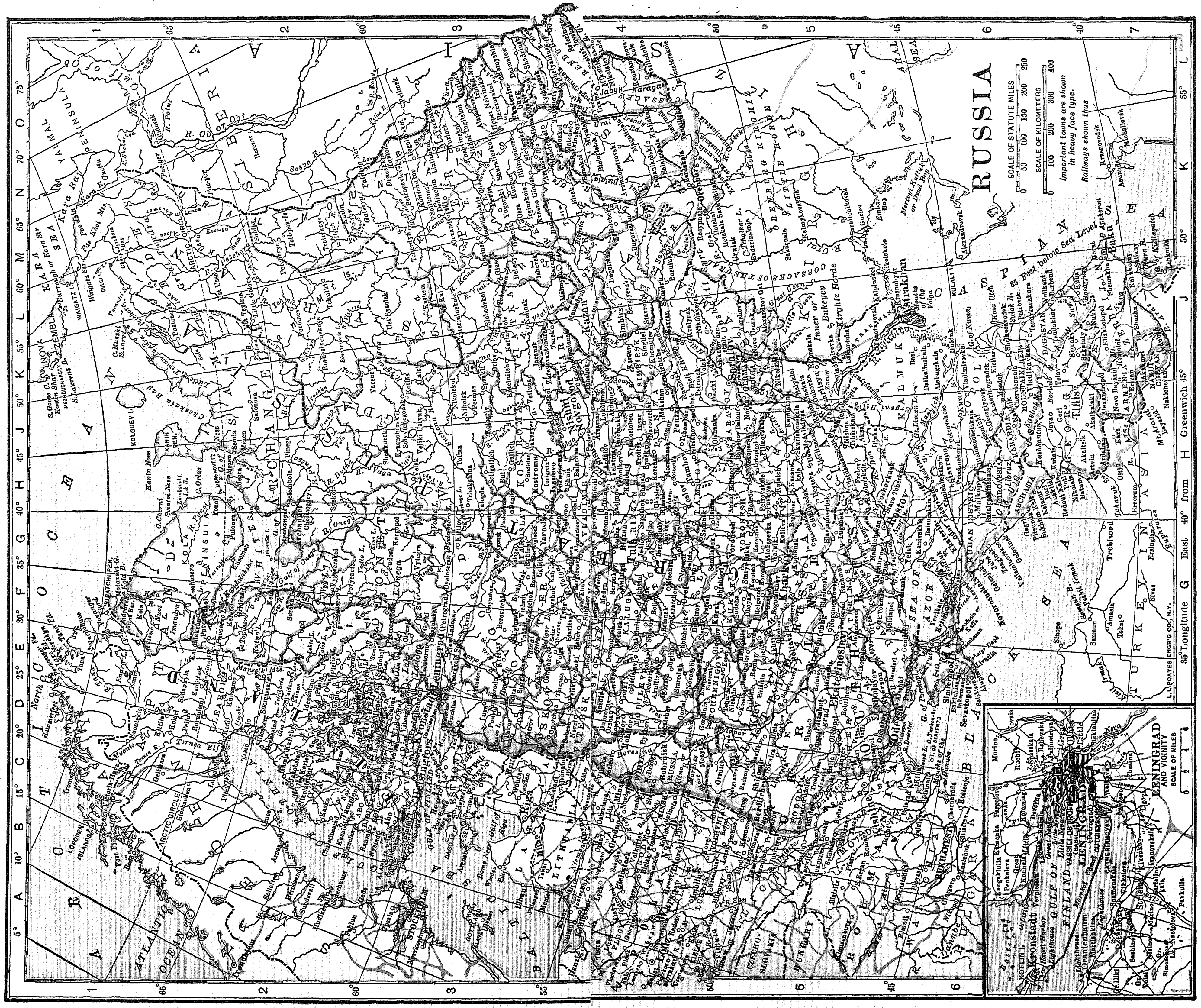
ATLANTIC OCEAN
ARCTIC CIRCLE
BALTIC SEA
BLACK SEA
CASPIAN SEA
SEA OF AZOF
ARAL SEA
KARA SEA
WHITE SEA
NOVA ZEMBLA
KOLA PENINSULA
YALMAL PENINSULA
SIBERIA
ARCHANGEL
TURKEY IN ASIA
KALMUK
LITTLE KIRGHIZ HORDE
Inner or Bukeyev Kirghiz Horde
Leningrad (Petrograd)
Helsingfors
Stockholm
Riga
Moscow
Kiev
Odessa
Kharkov
Kazan
Nishni Novgorod
Saratov
Astrakhan
Rostov
Tiflis
Baku
Ekaterinburg
Orenburg
Kronstadt
Gulf of Finland
Vassili Ostrov
Oranienbaum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HUNGARY
CZECHO-SLOVAKIA
RUMANIA
BULGARIA
Leningrad
Moscow
Stockholm
Helsingfors
Tiflis
Astrakhan
Baku
Odessa
Kiev
Kharkov
Archangel
Kronstadt

tions of the state taxation system. Some of these recommendations were effected before the close of the year and others were approved by the government pending the negotiation of a large foreign loan. The contract for this loan was concluded with an American banking group on October 12 and the bonds were offered in New York, London, and other European financial centres. Charles L. Dewey, former Assistant Secretary of the Treasury of the United States, was selected by the Polish government for the post of financial adviser, and Dr. E. Dana Durand, formerly connected with the United States Bureau of Foreign and Domestic Commerce and an expert on Polish affairs, was selected as his aide.

Situation in the Spring. Despite the factors noted in the preceding Year Book which tended to weaken the position of Premier Pilsudski, he not only held his iron grip on the government but strengthened his position in many ways. It required only the slightest pretext to carry out wholesale arrest of his enemies. The best example of this was the arrest in the first month of the year of several members of the legislature and hundreds throughout the republic on charges of fomenting a plot to establish a White Russian Communistic government in Poland. Although the government claimed to have seized vast quantities of arms and ammunition as well as documentary evidence to support its contention, nothing was publicly printed to show that there existed such a widespread plot as the government unearthed.

The uncertainty of the Premier's position was clearly illustrated in the debate over the budget bill in February. On all sides it was freely predicted that the government's measure was to be overwhelmingly defeated by the Parliament. The bill as introduced was amended to such an extent that it was hardly recognizable. When the day for a vote came, however, Pilsudski appeared before the diet in his military uniform and accompanied by his cabinet. He entered the chamber (for the first time since his *coup*) at the psychological moment and the opposition vanished into thin air. Before the opposition could collect itself the budget bill was passed in its original form and the Premier had secured a tremendous personal triumph. On March 25, the dictator adjourned the diet, giving as his reason that it had been merely summoned to consider the budget and now that that was done there was no further need for its meeting.

A crisis with Russia was narrowly averted when the Soviet minister at Warsaw, Peter Voikov, was assassinated by a Russian emigré. Early in June the Russian government sent a note to Warsaw, which held the Polish government responsible for the assassination and declared that the Polish government had not taken necessary measures against the criminal activities in Polish territory of Russian counter-revolutionary terroristic organizations, which are particularly dangerous to the cause of peace in the present intense international situation. When the Polish government, thereupon, suggested that Soviet representatives should aid in an investigation of the Voikov murder, the Moscow government adopted a much milder tone and let it be known that a breach between the two countries was not desired. Of course at this time Russia was in the throes of a diplomatic rupture with Great Britain and evidently did not wish to turn the spotlight of publicity from that affair to one nearer at home. See Russia, *History*.

In reply to the Russian note, the Polish authorities offered to indemnify Voikov's family, although at the same time it pointed out that his assassin was a Russian citizen and not a Pole. The Polish Foreign office also stated that Voikov had repeated rejected offers of police protection. For a time this seemed to end the affair, but a few weeks later Moscow opened it up again by making further demands upon Poland and demanding that that country take strenuous steps to wipe out anti-Soviet organizations. It refused to accept indemnity for Voikov's family. In the meantime the Polish courts tried the assassin, who was a minor, and, while finding him guilty and sentencing him to life imprisonment, recommended to the Polish President that his sentence be reduced to 15 years. It was feared in many quarters that this light punishment would call for reprisals on the part of Russia.

Marshal Pilsudski, in answer to Russia's second note, had the following response delivered to Moscow: "In attempting to humiliate Poland without reason, you only incur the risk of humiliating yourself, since you have not sufficient force behind your threats, which you know as well as we do. We have done everything reasonable to give you satisfaction, and now we must courteously urge that you let the matter drop, because if regrettable incidents follow, you alone will be responsible."

Situation at the End of the Year. The difficult position of Dictator Pilsudski was well illustrated in the fall of the year when an extraordinary session of the diet was held in mid-September. As noted above Pilsudski had adjourned the diet after the passing of the budget law early in the spring. A provision of the Polish constitution, which said that the diet must be summoned whenever a petition signed by a certain number of members demanded it, was used by the opposition to compel Pilsudski to gather the legislating body in assembly. The Premier called upon another provision of the constitution to offset this menace to his régime. This provision stated that the diet could not begin work until it was formally permitted to do so by a decree of the President. He was willing to issue this decree only if the diet would limit its discussion to the third quarter of the budget. Although the leaders agreed to this proviso, it was not adhered to, and the opening session of the body was deluged with all kinds of measures, including one of no confidence in the existing government. Pilsudski met this situation with a decree on the second day of the diet's sitting which ordered it adjourned for 30 days.

The constitution, when referred to again, revealed that a session of the diet must be held before November 1 to consider the budget for the ensuing year. In accordance with this provision the diet was assembled on October 31. Before anything was accomplished, however, the diet was again adjourned on November 3 until November 28, when the terms of the deputies expired. According to parliamentary procedure this necessitated an election, but opinion was almost unanimous in the belief that Pilsudski would not dare appeal to the people and would declare that no elections would be held. The constitution permitted him to promulgate the preceding budget until such time as a new diet was elected. After the term of the deputies expired more than 50 of the Opposition members were arrested, a device not resorted to before because of parliamentary immunity. The political issues at the close of the year were somewhat changed by the settlement of the dispute with Lithuania, a discussion of which will be found under LITHUANIA, History, and LEAGUE OF NATIONS.

POLAR RESEARCH. After the seeming neglect of polar exploration, renewed interest was being awakened by the organization of an international society for polar investigation, which had 180 members representing 19 nations.

At the meeting of the British Association for the Advancement of Science, Rudmose Brown, an expert, declared that certain polar problems demanded extended explorations for certain physical foundations for science. Among these are the unknown coast lines of Antarctica: delimitation of its glaciers; oceanographic life: oscillations of climate; fluctuations in extent and movement of arctic ice-fields; the distribution of land and ocean in unknown areas.

ARCTIC RESEARCH. The Soviet expedition of Obroutchef, for geological investigations, to the northern watershed of the Indigirka, Siberia, exposed current ignorance as to the region. Described for centuries as an arctic plain, with a few wandering hunters, it proved to be a region of high, extended mountain chains, with quite a population of Yakuts and Tunguses. Although details are lacking, there were found a number of communities of primitive people, whose life-methods show that in the distant past they had contact with Russians, whom they now know by tradition only. Another Soviet expedition was exploring, in coöperation with the University of Oslo, the unknown interior of Kola Peninsula, Arctic Lapland. In the adjacent Barents Sea, a German, Schultz, was surveying the fisheries.

The only adventurous Arctic expedition was that of Wilkins, who made an aviation flight into the unknown area northwest of Alaska.

His flight in 1926 of 150 miles over Beaufort Sea was a notable reconnaissance of the unknown regions, which impelled him to renew his efforts the following year. On March 29, 1927, Wilkins and Eielson left Point Barrow in an airplane, which carried, as was thought, enough fuel for a flight of 1400 miles in calm weather. They had flown 550 miles over the Arctic Ocean to the northwest, when engine trouble obliged a forced landing, which was successfully made without injury to the plane.

Wilkins improved the opportunity to make a sounding, which disclosed very deep water, over 4000 fathoms. There were no signs of land, and prospects of its near existence were improbable. After temporary repairs to the engine, they started homeward for Point Barrow but were forced to make another landing, which was done without danger.

On resuming their flight a blizzard struck them; after dark their gas failed and they struck rough ice which crippled the machine. They made sledges from the woodwork, and after 5 days found that they were 100 miles east of Barrow and 70 miles from shore. With indomitable energy they encountered disasters and sufferings, but eventually they reached an Eskimo camp at Beechey Point.

ANTARCTIC RESEARCH. Explorations for geographical discoveries had temporarily ceased in the Antarctic. The Argentine Geographical Institute, under governmental auspices, organized an expedition, which, establishing a land base on Graham Land, was to explore by aviation the coasts of Weddell Sea, but it had not yet started. An American expedition, under Byrd, was making arrangements to enter the field in late 1928, the antarctic summer.

Interest in the antarctic regions was principally commercial, in the exploitation of its oceanic resources. In this respect Great Britain had a practical monopoly, and began in 1925 a scientific study of conditions which might conserve whale and other fisheries. The *Discovery* returned to England after studying conditions in the southern seas; it was said that the experts had obtained valuable information bearing on this problem.

It is to be recalled that Great Britain, by letters patent, in 1908 declared Graham Land to be a British possession, extending "to the south of the 50th parallel of south latitude, and lying between the 20th and 80th degrees of west longitude." It forbade fishing in this region (the Falkland Dependency), except under license and from September to May. The whale fishery is conducted at five land stations at South Georgia, and five floating stations in South Shetlands. In 1924, 458,000 barrels of oil were exported.

To the west of Graham Land a French expedition, under Charcot, in 1927 began research studies on prospective fishing in those waters, presumably to assert French rights.

In 1923, under an Order in Council, the Ross Dependency of New Zealand was created. It includes all islands and territories lying to the south of 60 degrees of south latitude, and between 160° east longitude and 150° west longitude; that is, Ross Sea and the lands of Victoria and William.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF. A forum for the scientific discussion of social, civic, industrial and economic topics; founded in Philadelphia, Dec. 14, 1889, and incorporated Feb. 14, 1891. Meetings are held throughout the year at which subjects of national and international interest are discussed. The 31st Annual Meeting was held Apr. 22–23, 1927, and considered the general subject: "Some Outstanding Problems of American Foreign Policy." Other meetings conducted during the year discussed the following subjects: "Are the Filipinos Ready for Independence?" "An American Locarno," and "Philippine Independence from the Standpoint of Domestic and International Responsibilities." *The Annals* are published bi-monthly as the official organ of the Academy, each issue being devoted to a study of a particular topic of economic, political or social importance. In 1927 the following volumes were issued: "Federal versus State Jurisdiction in American Life"; a supplement, "Social and Economic Consequences of Buying on the Instalment Plan"; "Modern Insurance Tendencies"; a supplement, "The Legal Minimum Wage in Massachusetts": "Aviation": a supplement, "Are the Filipinos Ready for Independence"; "Some Outstanding Problems of American Foreign Policy"; "Planning for City Traffic"; and "Europe in 1927." The officers in 1927 were: President, Dr. L. S. Rowe; Secretary, Dr. J. P. Lichtenberger; Treasurer, Charles J. Rhoads; and Vice Presidents, Dr. Ernest Minor Patterson, the Hon. Herbert C. Hoover, and Dr. Charles E. Merriam. The address of the Academy is 3622–24 Locust Street, West Philadelphia, Pa.

POLITICAL ECONOMY. Subjects in the field of economics are treated in this volume under the following heads: BANKS AND BANKING; BUSINESS REVIEW; FINANCIAL REVIEW; CHILD LABOR; COOPERATION; LABOR; LABOR ARBITRATION AND CONCILIATION; LABOR LEGISLATION; MATERNITY PROTECTION; MINIMUM WAGE; OLD-AGE PENSIONS; STRIKES AND LOCKOUTS; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION. See also such articles as CHILD WELFARE; LABOR, AMERICAN FEDERATION OF; SOCIALISM; TRADE-UNIONISM; WELFARE WORK.

See also the articles on AGRICULTURE, the various crops, etc. Further discussions are to be found in articles on the several industries, minerals, public utilities, etc., and in sections on economic conditions in the articles on the individual countries. Books on political science and economics, for the general reader, are noted in LITERATURE, ENGLISH AND AMERICAN, paragraph *Economics and Politics.*

POLITICAL SCIENCE, ACADEMY OF. An American institution for advancing the political sciences and promoting their application to public problems; founded in 1880 in New York City, and incorporated in 1910 under the membership corporation law of the State of New York. On Dec. 31, 1927, it had 6542 members, of whom nine were honorary members, 198 life members, and approximately 1100 subscribing members, chiefly libraries and organizations. All States in the Union, the District of Columbia, Porto Rico, Hawaii, the Philippine Islands, and leading foreign countries, are represented in both the individual and subscribing memberships. Two general meetings were held in 1927. The semiannual meeting was held on April 8, at the Hotel Astor, New York, to discuss "Stabilizing Business." The general subject for discussion at the meeting was "Public Spending and Private Business." Three sessions were held dealing with (1) Planning of Business to Promote Stability; (2) Planning of Governmental Organization and Expenditures to Promote Stability; and (3) The Effect of Governmental Expenditures on Business. The papers and addresses, with some additional material and a prefatory note giving some account of the meeting and information concerning the speakers, were published in *The Proceedings,* vol. xii, No. 3, under the title, "Stabilizing Business," July, 1927.

The annual meeting, held November 18th, was devoted to the subject, "America as a Creditor Nation." Three sessions were held as follows: (1) Foreign Investment Problems; (2) International Trade Relations; (3) International Finance and World Trade. The papers and addresses prepared for the meeting were published in *The Proceedings,* vol. xii, No. 4, published January, 1928, together with some account of the meeting. Four issues of the *Political Science Quarterly,* the official organ of the Academy, were published during the year. The officers for the year were: Samuel McCune Lindsay, president; Albert Shaw and Paul M. Warburg, vice presidents; Parker T. Moon, secretary and editor of the publications; George A. Plimpton, treasurer; and Ethel Warner, executive secretary and assistant treasurer. The headquarters are in Fayerweather Hall, Columbia University, New York City.

POLITICS, INSTITUTE OF. Formed for the discussion of foreign affairs, so as to promote a more sympathetic understanding of the problems and policies of other nations, these annual sessions were inaugurated by the trustees of Williams College in September, 1919. The first session of the Institute was held at Williamstown, Mass., in the summer of 1921. Membership is open to men and women on the faculties of colleges and universities, to writers on foreign politics, to persons engaged in the direction of foreign commerce or banking, to diplomatic and consular officials, to officers of the army and navy, to editors, foreign correspondents of the press, and by invitation, to others who have had training and experience in international law and politics. In 1924 the General Education Board and the Carnegie Corporation joined with Bernard M. Baruch, who had made the first three meetings possible, in financing the movement for a five-year period.

The seventh session of the Institute met at Williamstown, July 28–Aug. 25, 1927. Addresses were delivered by visitors of international reputation, including Dr. Jacob Lange, the Danish authority on agriculture, Dr. Robert Michels, Professor of Political Economy at the University of Basel, Switzerland, Bishop Nicholai of Ochrida, Serbia, and Moises Saenz, Mexican Under-Secretary of Education. Lecture courses were conducted by Dr. Peter Reinhold, formerly Finance Minister in the Luther Cabinet in the German Reich, whose subject was "Financial and Economic Policy of Germany Since the War"; Count Carlo Sforza, member of the Italian Senate, "Diplomatic Europe Since the Treaty of Versailles"; Sir Arthur Willert, head of the news department of the British Foreign Office, "The British Foreign Policy Since the War."

The following is a list of the Round-Table subjects with their respective leaders: International Debts in Retrospect and Prospect, Dr. Joseph S. Davis, of the Food Research Institute, Stanford University; The Philippine Islands: Their Political Status, Professor Ralston Hayden of the University of Michigan; Present Problems of the British Commonwealth of Nations Since the War, Professor Herbert Heaton, Queens University; Main Contrasts between the Anglo-Saxon and Continental Systems of Law, Dr. Pierre LePaulle, Paris, France; The Chinese Situation, Professor Harold S. Quigley of the University of Minnesota; Foreign Interests and National Self-Determination in Latin America, Prof. William R. Shepherd of Columbia University; Dictatorship versus Democracy in Europe, Prof. Harold R. Spencer, Ohio State University; An American Agricultural Policy, Mr. Henry A. Wallace of Des Moines, Iowa.

There were 264 members in attendance at the 1927 meeting, representing 13 countries, of which Japan headed the list with 8 representatives; 25 States of the United States were represented. The Institute publishes an annual report of the main ideas developed at the conferences, copies of which may be obtained through the secretary. The officers of administration in 1927 were: Harry Augustus Garfield, chairman; Walter Wallace McLaren, executive secretary; and Willard Evans Hoyt, treasurer. Headquarters are at 1 Hopkins Hall, Williamstown, Mass.

POLO. There was a decided international flavor to polo in 1927 due to the comparatively long visit made to the United States by a British team composed of a group of army officers from the Army-in-India. The training of the British for the Hurlingham Trophy matches suffered from the continuous rainy weather and in the first contest the United States four—J. Watson Webb, Thomas Hitchcock, Jr., Malcolm Stevenson and Devereux Milburn—triumphed by the one-sided score of 13 to 3. The composition of the British team in this match was: Captain Claude E. Pert, Major Austin H. Williams, Captain C. T. I. Roark and Major Eric G. Atkinson. As a result of the poor showing made in the opening match the British made radical changes in their line-up for the second clash in which they went down to defeat by a score of 8 to 6, but only after a magnificent battle. The British four in this contest comprised Captain Richard George, Captain John P. Denning, Captain C. T. I. Roark and Major Eric G. Atkinson.

The United States junior championship was won by the United States army team for the second consecutive year, but this same four was forced to bow in the United States open tourney to the beautifully mounted Sands Point combination consisting of W. Averell Harriman, Thomas Hitchcock, Jr., F. Cowdin and Louis E. Stoddard.

The Anglo-American Eastcott team, comprising the two Earl Hoppings, father and son, John A. E. Traill, famous Argentine back, and A. C. Schwartz, captured the Monte Waterbury Cup. Yale University triumphed in both the indoor and outdoor college tourneys.

POMPEII. See ARCHÆOLOGY.

PORK. See LIVESTOCK.

PORTLAND CEMENT. See CEMENT.

PORTO RICO, pōr'tō rēkō. An island possession of the United States in the West Indies; the most easterly and the smallest but most densely populated of the Greater Antilles; lying 480 miles east of Cuba, 1380 miles southeast of New York. Capital, San Juan.

AREA AND POPULATION. The area of the island is 3435 square miles and the population, according to the census of 1920, 1,299,809. Although the Governor's report for 1927 did not give an estimate of the population for that year, the estimate for 1926 placed it at 1,417,000, of which 388,756, or 27.4 per cent, was urban and 1,026,890, or 72.6 per cent, was rural; 1,088,668, or 76.8 per cent, was white, and 328,978, or 23.2 per cent, was colored. The movement of population in 1927 was: Births, 58,390; deaths, 33,562; marriages, 9898. The capital, San Juan, had a population of 70,707 in 1920. Other important towns are Ponce (41,561) and Mayaguez (19,069).

EDUCATION. Primary education is free and compulsory between the ages of eight and 14. According to the governor's annual report for the fiscal year 1927, there were employed in that year 4483 teachers. The total enrollment in all the public schools was 213,321. Of this number, 1371 were enrolled in needlework classes; 122,354 in the rural schools; 82,399 in the elementary urban schools; 7055 in the secondary urban schools; and 142 in the industrial school in San Juan. In addition to the persons enrolled in public schools, 6489 attended private schools. The average number enrolled was 191,153, and the average daily attendance was 182,927. The legal school year consists of 10 months of 20 days each. There are 2184 different buildings used for schools, with 4454 school rooms. During the year, 29 new school sites were acquired; 86 new school buildings were completed; and new equipment was purchased at a cost of $47,861. The total capital outlay for the year was $506,790. The total expenditure for current expenses for the year was $4,265,000. In addition the municipalities disbursed $1,622,000 from their own school funds. Seventeen high schools were maintained during the year with 369 teachers and 7055 pupils. The enrollment in all the departments of the University of Porto Rico during 1926–27 was 2850 and the faculty numbered 151.

PRODUCTION. Agriculture is the principal industry on the island and the chief crops are sugar, tobacco, coffee, and fruits. In general, the sugar situation showed a marked improvement for the year. The crop produced amounted to 629,129 tons, as compared with 603,187 tons produced the preceding year. The value of the sugar exported also increased from $48,201,000 to $54,347,000. Sugar reached the lowest price in 1926 since 1914, averaging 4.17 cents per pound. In 1927 the average price increased to 4.75 cents per pound. Estimates of the 1927–28 sugar crop made at the end of the year placed the production at 608,235 short tons. The normal tobacco crop of Porto Rico has been about 25,000,000 pounds. The high prices received in 1925 and 1926 stimulated the growers to excessive activity in preparing for the tobacco crop of 1927.

Little attention was given to market conditions, to facilities for curing and warehousing, or to the advice of experts. The growers were warned that under no circumstances should the total amount placed on the market exceed 30,000,000 pounds. The normal area planted had been about 45,000 acres. Instead, 85,000 acres were planted. The tobacco barns were but slightly increased in capacity. The season was wet and laborers could not be obtained to harvest properly and care for the crop. The quality was consequently below the average, and the amount produced more than doubled the advised market requirements. As a consequence the price paid was about 22 cents as compared with 30 cents in 1925 and 39 cents in 1926. More persons are engaged in the production of coffee than of any other product. In 1925–26 the coffee crop totaled 26,330,000 pounds, valued at $7,082,000. The year 1926–27 was expected to show an increase over these totals but a severe tropical storm in July, 1926, destroyed about 40 per cent of the crop, with the consequent result that production amounted to 18,961,000 pounds valued at $5,626,000. The exportation of fresh fruits suffered a decline during the year, but the exportation of canned fruits materially increased.

COMMERCE. The growth of trade between Porto Rico and the United States and with foreign countries is shown in the following table:

GROWTH OF EXPORT AND IMPORT TRADE OF PORTO RICO

	1900	*1925*	*1926*	*1927*
Brought from the United States	$6,952,114	$79,349,618	$83,046,553	$87,046,319
Shipped to the United States	3,350,577	84,411,792	88,106,570	100,574,001
Brought from foreign countries	3,037,391	11,154,983	12,211,711	11,764,431
Shipped to foreign countries	3,261,922	10,407,152	10,618,281	7,493,433
Total	16,602,004	185,323,545	193,983,115	206,878,184

The table shows the steady growth of the commerce of Porto Rico. The total external trade in 1900, two years after the American occupation, was only in round numbers $16,000,000. In 1927 it was $206,000,000. The increase was being maintained from year to year. The increase from 1925 to 1926 was $8,659,570; and from 1926 to 1927 it was nearly $13,000,000.

The increase of the shipments to the United States was from $3,000,000 to $100,000,000; and the increase of purchases from the United States was from $6,000,000 to $87,000,000. The balance of trade with the United States is over $13,000,000 in favor of Porto Rico. Ninety per cent of all the trade of Porto Rico is with the United States. The four principal products exported from the island are sugar, tobacco, coffee, and fruits. The total number of vessels which entered and cleared the ports of Porto Rico during the year was 2922.

COMPARATIVE STATEMENT OF RECEIPTS AND DISBURSEMENTS OF PORTO RICO, FISCAL YEARS 1926 AND 1927

	Fiscal year ending June 30—	
	1926	*1927*
Balance from prior years	$22,660.37	$414,751.57
Revenues:		
Customs	1,804,556.09	1,806,567.91
Internal	4,774,414.72	8,534,267.66
United States internal revenues	987,849.80	440,650 71
Miscellaneous	4,207,133.26	577,338.22
Total revenues	11,773,953 87	11,358,824.50
Other receipts:		
Repayment of loans	[a] 5,675.00	[a] 56,090.00
Repayment of transfers	357,235.24	....
Repayment, bureau of supplies	1,497,900.81	1,755,362.94
Other repayments	382,894.40	236,361.54
Transfer from trust fund	....	604,300.00
Total other receipts	2,243,705.45	2,652,114.48
Total	14,040,319.69	14,425,690.55
Expenditures:		
Legislative	124,629.63	171,743.56
Executive—		
Bureau of supplies	....	....
Carnegie library	23,444.92	24,294.95
Insular police	856,142.73	856,415.85
Maintenance and repairs—		
Roads and bridges	1,077,015.18	1,184,341.12
Public buildings	56,322.19	54,699.93
Insular telegraph	210,380.36	219,985.90
Public schools	3,965,533.04	4,153,993.29
University of Porto Rico	1.46	....
Health	1,226,269.50	1,233,613.71
Other expenses	4,150,484.21	4,454,107 39
Judicial	678,344.90	697,449.90
Total expenses	12,368,568.12	13,050,645.60
Other payments:		
Repayments and transfers	1,216,500.00	1,199,287.59
Municipal and school board bonds	40,500.00	47,500.00
Total other payments	1,257,000.00	1,246.787.59
Cash balance	414,751.57	128,257.36
Total	14,040,319.69	14,425,690.55

[a] Includes earthquake mortgage loans and loans to municipalities and school boards.

FINANCE. The accompanying table from the annual report of the Chief of the Bureau of Insular Affairs gives the status of the budget for the last two years.

The total bonded indebtedness on June 30, 1927, amounted to $23,023,000.

LEGISLATION. The regular session of the legislature met on February 14 and lasted until April 15. Forty-five laws and 46 joint resolutions were approved by the governor during this session. There was a special session April 25–May 8.

OFFICERS. The members of the government at the end of the year were: Governor, Horace M. Towner; Attorney-General, Dr. George C. Butte; Treasurer, Juan G. Gallardo; Commissioner of the Interior, Guillermo Esteves; Education, Juan B. Huyke; Agriculture and Labor, Carlos E. Chardon; Health, Dr. Pedro N. Ortiz; Auditor, Frederick G. Holcomb; Executive Secretary, Eduardo J. Saldana.

PORTS AND HARBORS. In the United States during 1927 a number of important terminal developments were under way by railways, and municipal and state authorities. At Jersey City and Norfolk, on the Atlantic Coast, there were costly freight piers and wharves under construction, while on the Gulf of Mexico the ports of Mobile, Alabama, and Houston and Corpus Christi, Texas, were being made available for extensive commerce. On the Great Lakes new ore and coal shipping docks, for increased storage capacity and increased rapidity of loading, were under construction.

ALABAMA STATE DOCKS. The terminal at Mobile, to which reference was made in the YEAR BOOK for 1926, made rapid progress in 1927, and Pier No. 1, composed of concrete and steel, was completed and in use. This pier included 2400 feet of apron wharf, 300,000 square feet of storage and 207,000 square feet of cotton warehouse. Pier No. 2, 1600 feet in length and 500 feet wide, carrying a concrete and steel warehouse, for ships loading and discharging alongside, was about finished at the end of the year, and its completion was looked for in 1928.

Between these two piers a slip 1600 feet by 350 feet had been completed. Pier No. 3 was under construction and about two-thirds of concrete apron wharf on one side had been built at the end of the year.

HOUSTON, TEXAS. During 1927 important public and private developments were under way at this port, located 50 miles inland from the Gulf, but reached by a ship channel which affords a 30-foot depth of water. The River and Harbor Act of 1927 provided for a survey to give 32 feet of water over a width of 250 feet for the 25 miles to Galveston Bay, and 500 feet through the bay to the open sea. Through an extension of the channel for 6½ miles, access to the centre of the city was provided for barges and light-draft vessels, and for 2 miles of this distance a 30-foot channel, 150 feet in width, was to be constructed while the remainder was to be 10 feet deep and 60 feet wide. Several large wharves were under construction during the year, one of which was an extension of the 480-foot wharf served by a 1,000,000-bushel grain elevator which was built in 1927. Still another wharf, 460 feet in length, was under construction, while the port facilities were being increased by about 10 miles of track added to the lines and yards of the Public Belt Railway.

Corpus Christi, Texas. During the year there was considerable activity at the new port of Corpus Christi, Texas, formally opened in September, 1926. This port was established by the city of Corpus Christi on the land-locked harbor of Corpus Christi Bay, which, with an area of about 140 square miles, is reached from the open water of the Gulf of Mexico by the Aransas Pass, a natural channel about 200 feet wide, some 21½ miles from Corpus Christi. As the depth of the Bay ranges from but 8 to 14 feet, a ship channel from Aransas Pass to the city was authorized by Congress, and this work was undertaken under an agreement with the city, which was required to provide a turning basin 1000 by 3000 feet and 25 feet deep, with an entrance channel 200 feet bottom width, connecting with the Federal government's ship channel. The city was also required to provide an extension of the breakwater, a levee between the harbor and Nueces Bay, and wharves for shipping, in addition to a drawbridge across the entrance channel. The work was of considerable importance, involving not only an extensive commercial port, but various forms of shore protection to prevent damage by tropical storms such as occurred in 1919.

Canada. During the year, with the deepening of the channel of the River St. Lawrence, wharves were under construction with a depth of 40 feet of water alongside. One of these, located at Wolfe's Cove, was to be 2643 feet in length. The dredging of the river was being carried on with the intention of providing a channel 35 feet deep from Montreal to the sea at all states of the tide, and a large part of the estimated work had been completed at the end of the year. A new north channel near the Ile d'Orleans below Quebec had been marked and buoyed and after June was available at extreme low water for ships drawing 25½ feet.

At Vancouver the growth of the port and its improvement continued to afford facilities for the increasing export and import trade. At this port the grain elevator capacity was increased over 6,500,000 bushels and storage for another million bushels was nearing completion at the end of the year. In North Vancouver increased facilities for the shipment and bunkering of coal were being provided. The pier for the Canadian Pacific Railway, built of reinforced concrete, was finished with a viaduct 1000 feet in length connecting the pier with the shore. This new pier used piles instead of cylinders, as was the practice in the Ballantyne pier of this company.

Great Britain. On July 19 the Gladstone Dock project at Liverpool was formally opened by King George after having been under construction for a number of years, and in December, the graving dock was thrown open to shipping. The Mersey Dock and Harbor Board in 1910 began work on a large new wet dock with a total water area of about 58¼ acres. This included the Gladstone Dry Dock, which could be used also as a wet dock. This dry dock, completed in 1913, was originally entered direct from the river but when the construction of the new wet dock was in progress it was decided to include the dry dock within the former, and in March, 1921, the old dock was taken out of commission. The project involved, also, a new river entrance lock which was the largest in Great Britain, with dimensions exceeded only by those of the Kiel Canal locks and the new entrance lock in the Amsterdam Canal at Ymuiden, still under construction. There was also a new communication lock between the Gladstone Dock and the Hornby Dock, so that vessels proceeding to and from the older docks can use the new entrance when required. The Gladstone Docks have a quayage extending about 3 miles, with 3-story warehouses equipped with roof cranes. The total cost of the new works put in operation during the year was estimated at approximately $40,000,000.

At the port of London substantial progress was being made on the Tilbury entrance lock and dock extension which was begun by the Port of London Authority in July, 1926. During 1927 the improvement of the West India and Millwall Docks was put under construction. This involved the construction of a new entrance lock at the West India Dock, 590 feet long and 80 feet wide. There was also in progress the cutting of passages for the West India export and import docks, which hitherto had been separate, and the Millwall Docks. In the financial year ended Mar. 31, 1927, the Port of London made a record for total tonnage of vessels arriving and departing both with cargo and in ballast, 49,995,000 tons being entered and cleared from the port, as compared with 47,505,000 tons during the previous year. This was in view of a decrease for the United Kingdom as a whole of over 31,500,000 tons.

France. The Rove Tunnel connecting the port of Marseilles with Étang de Berre, with its waterway, was formally inaugurated in April, and not only adds a link in the inland waterway system of France, but opened up the large deep water lake for development by Marseilles as an annex to the port. During the year, plans were being developed for the extension of the port and harbor so as practically to double its capacity.

At Cherbourg a deep-water quay and maritime station had been planned, to cost over one million dollars, to accommodate the Atlantic traffic so as to provide for ships drawing 36 feet, at all states of the tide. At Boulogne the Ministry of Public Works was considering the construction of another breakwater on the north side of the harbor about two kilometers in length and the extension of the Carnot breakwater to form an enclosed outer harbor which would be dredged to a depth of about 43 feet at low water.

Belgium. At the port of Antwerp important developments were proposed, involving a large inland waterway scheme which would enable barges of 1350 tons to navigate between Antwerp and Liège and connect Antwerp with the canalized Meuse. On December 20, the new Kruisschans Lock at Antwerp and the basin canal to which it gave access were brought into use. This lock is 833 feet by 114 feet, inside dimensions, with a depth of 33 feet over the sills at low water, and about 46 feet at high water.

Spain. Extensive improvements were contemplated at Barcelona and at the port of Seville. At the latter the expenditure of five millions of dollars for river diversion and rectification was under consideration.

Italy. At Naples and Genoa, as well as at Palermo and Bari, new breakwaters were under construction with cyclopean blocks. At Genoa, the substantial enlargement of the port was in progress and additional large docks and warehouses were being built as part of an extensive programme. Better railway service was being planned and it was decided that on Jan. 1, 1928, the whole port of Genoa would become a "free" port, instead of a small area previously designated for this use. This, of course, did not mean that the city of Genoa would be "free." In 1926, Genoa entered and cleared 10,243 ships of 17,928,618 tons, as against 13,698 ships for Marseilles with 23,392,247 tons, but greater tonnage of goods was discharged and loaded at Genoa.

Holland. In connection with the construction of the great sea dike between the mainland of North Holland and the Island of Wieringen, the first section of which was completed in 1926, work was in progress on the main section of this dike, extending from Wieringen to the Frisian coast, about 18½ miles away. The areas near each end of the dike, where the navigation locks and sluices were to be built, were being enclosed, preliminary to the actual operation, and the northwest polder, lying between the Island of Wieringen and Medemblik, was being enclosed during the year.

South America. In Chile the seaward extension of the Valparaiso breakwater was in progress, involving construction in depths as much as 180 feet in places. This new extension was formed of a sand and rubble mound brought up to about 40 feet above mean sea level, with a superstructure formed of concrete blocks on the sloping system. At Antofagasta quays and jetties were being built under the shelter of the first breakwater, which was completed and formally accepted January 15 at a cost of about $8,200,000 and the construction of a second section and the deepening of the harbor area were in progress. Other new construction determined on by the Government of Chile was the construction of an adequate port at Valdivia to cost some $5,000,000. In Santos, Brazil, new quays were being built and facilities for oil imports, while harbor extensions were being completed at Callao, Peru, at La Guayra, and at Ilheos on the southern coast of Bahia, Brazil. At Bahia Blanca, Argentina, a large reinforced concrete elevator, 80,000 tons capacity, with the necessary loading and handling appliances, was under construction which would afford facilities for loading grain to ships at a maximum rate of 6000 tons per hour.

Africa. At Walfish Bay in Southwest Africa, the new port works which had been under construction for three years at a cost of about $3,500,000 were opened in August. These involved a deep water wharf, 1500 feet in length. At Beira the new lighter wharves had been nearly completed and the deep-water wharf and the dredging work were well under way. Additional port improvements were under construction at Kilindini, Mombasa. The breakwaters were under construction at Table Bay and Port Elizabeth, while the Cape Town coaling jetty was under construction and five additional berths for large ships were being built on the south arm of the Victoria Basin. At Durban the grain elevator with a storage capacity of 42,000 tons, or 12,000 tons more than the only other South African port elevator, at Cape Town, was completed and put in use in October. In West Africa the breakwater and harbor works at Takoradi were put in use and were to be formally opened in March, 1928. They involved a breakwater of the rubble mound type, about 1½ miles in length. In North Africa the Grand Mole at the port of Casablanca, Morocco, along with the Mustapha jetty, was being extended and at Algiers the Mustapha breakwater was put under construction in 1927.

Japan. At Osaka, Japan, during the year an extensive project of reclamation and harbor improvement was determined on, the entire improvement, extending over some four years, at an estimated cost of $2,500,000. In addition to the ground reclaimed and the deepening of the harbor, a reinforced concrete pier, 200 feet long and 33 feet wide, was an important element of the project.

During the year there was built on the Tyne the 50,000-ton floating dock for the new Naval Base at Singapore. The last of the seven sections was launched on December 10.

At Calcutta the King George Docks, put under construction in 1920, were reaching completion, while at Madras a reinforced concrete jetty was also nearing completion. This structure was carried on piles 25 inches square, some of which were over 75 feet in length, and would provide berths alongside with 33 feet at low water.

PORTUGAL. A republic of Europe, situated west of Spain in the Iberian peninsula, the westernmost of all the states of Europe. Capital, Lisbon.

Area and Population. The area of continental Portugal is 34,254 square miles; population, according to the census of 1920, 5,621,977, as compared with 5,545,595 in 1911. The Azores, with an area of 922 square miles, had a population of 242,613 in 1920; and Madeira, with an area of 314 square miles, a population of 169,777 in 1920; the total area, therefore, may be considered 35,490 square miles and the population in 1920 may be placed at 6,032,991, because the Azores and Madeira are considered integral parts of the republic. The Portuguese colonial possessions in Africa and Asia had an estimated area of 936,264 square miles, with a population of 8,737,853, of which 927,292 square miles, with a population of 7,736,700, were in Africa. Lisbon, the capital, had a population in 1920 of 486,372, and Oporto, the next largest city, 203,091. No later educational statistics are available than those for 1919, when the public elementary schools numbered 7007, with 170,415 pupils. According to the 1920 census, the illiterates numbered 1,838,419 men and 2,438,992 women.

Production. Cereal crops are the mainstay of agriculture in Portugal, yet production of wheat, rice, and corn is so insufficient for local needs as to necessitate annual imports of considerable amounts. A number of other products, however, are produced in sufficient quantities for exportation, among them dried grapes, almonds, fresh grapes, and olive oil. The most profitable agricultural product of the country is wine, especially port. As this is to some extent a luxury product, the prosperity of the industry is dependent in considerable degree on the general situation in export markets. Cork and cork products form one of the leading exports, and there is a demand for all that the country is able to supply. The principal market is the United States.

Inaccessibility has impeded mineral as well as agricultural development. Although all eight of the Portuguese Provinces are known to contain mineral deposits of greater or less importance, the actual output of the country is almost negligible. Coal, tin, tungsten, copper, pyrites, radium, arsenical pyrites, lead, zinc, and manganese are among the minerals known to exist, but the extent of their deposits is unknown and production is light. Textile products are the only Portuguese manufactures of more than local importance, and their export market is confined mainly to the colonies.

COMMERCE. Imports far exceed exports in the foreign trade of Portugal. Figures for 1925, the latest available, show imports valued at 2,561,000,000 escudos ($129,000,000) and exports at 1,158,000,000 escudos ($58.000,000). The adverse balance is thus considerably greater than the export total, though even these figures represent an improvement over previous years The principal offsets to this deficiency in exports are the earnings of the intermediary trade between the Portuguese colonies and foreign countries, the earnings of Portuguese companies and individuals in the colonies, and the remittances from Portuguese emigrants abroad. Exchange difficulties after the War were caused in part by the low export level, and this continued to be one of the barriers to economic recovery and progress. Imports of manufactured goods are high, as might be anticipated, but the value of foodstuff imports is only slightly lower, which is rather striking in view of the primarily agricultural character of the country; raw materials reach approximately the same value as each of the other two classes. Exports to Portugal from the United States in 1926 amounted to $10,672,262 and exports, from Portugal to the United States in the same year were $4,564,825.

FINANCE. According to *Commerce Reports*, the Portuguese budget for the fiscal year 1927–28 placed estimated revenues at 1,459,377,587 escudos as compared with 1,289,032,232 escudos for 1926–27, and expenditures at 1,484,045,029 escudos as compared with 1,155,304,830 escudos for the preceding year. The deficit of 266,272,597 escudos in the 1926–27 budget increased to an estimated 388,667,442 escudos. This deficit will probably be met by issues of treasury notes and by an increase in the note issue of the Bank of Portugal, to enable it to grant the government another substantial overdraft. On July 1, 1926, the total external debt of the republic amounted to £33,025,494 and the internal debt to 4,330,020,295 escudos.

COMMUNICATIONS. In 1925, 2109 vessels of 5,189,521 tons entered the port of Lisbon and 1249 of 1,997,026 tons entered the port of Oporto.

In a study of railway operations in Portugal in 1926, published by the U. S. Bureau of Foreign and Domestic Commerce in September, 1927, it was stated that the most important railway in the country was the Companhia dos Caminhos de Ferro Portuguezes. The length of this railway at the close of 1926 was 1146 kilometers; operating revenues amounted to 201,687,406 paper escudos: freight transported during the year totaled 2,242,528 tons and passengers transported numbered 11,727,988. The rolling stock in operation at the end of the year consisted of 212 locomotives, 3335 freight cars, and 555 passenger cars. The general condition of the equipment was reported as being good. This company during June, 1926, took over the government-owned railways, the second system in importance in the country. This transaction made the company practically the sole owner of the railways of continental Portugal. The government-owned railways operated 502 kilometers of line, and the rolling stock consisted of 93 locomotives, 1320 freight cars and 234 passenger cars. The material of these lines had improved considerably of late years, owing to a good supply of rolling stock supplied by Germany under the reparations plan.

GOVERNMENT. According to the constitution of 1911, executive power is vested in the president, elected by the parliament for four years but ineligible to reëlection, who acts through a responsible ministry; and legislative power in a parliament of two chambers, the upper house having 71 members elected by the municipal councils and the lower house 164 members elected for three years by direct suffrage. Acting President at the beginning of the year, General Antonio Oscar de Fragoso Carmona (appointed in December, 1926). The cabinet was formed as follows: Prime Minister, General Carmona; Interior, Adriano da Costa Macedo; Foreign Affairs, Antonio Maria de Bettencourt Rodiques; Finance, General de Cordes; Justice, Manuel Rodriques, Jr.; War, Abilio A. V. de Passos e Sousa; Marine, Jayme Afreixo; Colonies, Jaoa Bello; Instruction, Alfredo de Magalhaes; Commerce and Communications, Julio Cesar de Carvalho Teixeira; Agriculture, F. A. Pedrosa.

HISTORY. As noted in the preceding YEAR BOOK, General Carmona practically established himself as a dictator in Portugal before the close of 1926. Shortly after the opening of 1927, his position as a dictator was put to a severe test. The party in opposition to General Carmona issued a manifesto to the foreign legations stating that when they came into power they would not recognize any foreign loans contracted by General Carmona's government. The government took prompt action which resulted in another revolution, the twenty-third since Portugal became a republic in 1910. Those members of the opposition parties who signed the manifesto and served in the Portuguese army were stripped of rank; some exiled.

On February 3, the action of the government was met by a revolutionary movement under the leadership of Gen. Souza Diaz. A state of siege was immediately declared and troops sent to Lisbon and Oporto, where the fighting was heaviest. The affair was extremely violent and bloody during the week it lasted, estimates of the dead being placed as high as 1000. General Carmona reported February 10, that the movement had been crushed. He took drastic measures, such as the abolition of the right to strike and the suspension of opposition newspapers, to prevent the recurrence of the affair. He stated at the time that these measures were temporary and would be rescinded as soon as conditions warranted them.

While outwardly the country remained calm there were unmistakable evidences of inward seethings. In the middle of August a military group invaded the home of General Carmona, while he was holding a cabinet meeting, and demanded that the government resign. Upon the cabinet's refusal to do so the military officers fired upon the cabinet members and a catastrophe was narrowly averted by the personal courage of the dictator. The leaders in this abortive uprising were jailed and later exiled to the Cape Verde Islands. The year closed with President Carmona still in power. It was reported toward the close of the year that the government was planning to request the League of Nations to establish a financial control over the country similar to that exercised in Austria and Hungary.

PORTUGUESE EAST AFRICA, or MOZAMBIQUE. A colony of Portugal, extending along the coast of Africa from 10° 40′ S. latitude to the boundary of the Union of South Africa; bounded on the west by the Union of South Africa and Rhodesia, and on the north by Tanganyika. Area, 428,132 square miles. The estimated population comprises about 3,000,000 natives; 10,500 whites; and 1100 Asiatics and half-castes. There are three clearly defined divisions of the colony: (1) the Province of Mozambique, 295,000 square miles; (2) the territory under the Mozambique Company, 59,840 square miles; (3) the district under the Nyasa Company, 73,292 square miles. In addition, there is the "Kionga Triangle," formerly belonging to German East Africa, situated south of Rovuma, which was allotted to Portugal by the Treaty of Versailles. Lourenço Marques, the capital and chief port for foreign trade, had a population, according to the latest available statistics, of 9849, of whom 4691 were Europeans. Other ports are Mozambique, with a population of about 361,839 (472 Europeans): Ibo, Chinde, Beira, Quilimane, and Inhambane. The chief products are beeswax, coconuts, sugar, and mineral products. Rubber and ivory are exported. Imports in 1925, exclusive of gold and silver, amounted to $13,484,000 and exports to $7,270,000, leaving a negative balance of $6,214,000. Corresponding figures for 1924 were $9,859,000 for imports and $6,446,000 for exports, with a negative balance of $3,413,000. The proposed provincial budget of Portuguese East Africa for the fiscal year 1927–28 balanced at 399,701,814 escudos ($19,985,090). The port and railway administrative council at Lourenco Marques took out of the hands of private companies the work of landing and loading at the port, and put the contract for such work up for tender as from Aug. 1, 1927. The five landing and shipping firms were very much upset about the proposed change.

PORTUGUESE GUINEA. gĭ'nē. A colony of Portugal on the west coast of Africa, entirely surrounded on the land side by French territory. It includes the archipelago of Bijagoz, together with the island of Bolama on which is situated the capital, Bolama. Area, estimated at 13,940 square miles; population, variously estimated from 300,000 to 800,000. The principal port is Bissau. The chief products are wax, rubber, ivory, hides, and oil seeds. The imports in 1924 were valued at 61,570,808 escudos; exports at 49,192,929 escudos. The estimated public revenue for 1926–27 was 19,966,900 escudos and the expenditure, 19,685,239 escudos.

PORTUGUESE WEST AFRICA. See ANGOLA.

POST OFFICE. See UNITED STATES.

POTASH. In 1927, 95 per cent of the world's requirements for potash, used principally as a fertilizer, were supplied from German and Alsatian deposits. It was estimated that Germany produced over 1,200,000 tons and consumed 700,000 tons; Alsace produced 380,000 tons; the United States, 28,000 tons; Poland, 15,000 tons; and Spain, 25,000 tons. At the present rate of consumption Germany, with over 200 mines of which 43 were in operation and 22 in immediate reserve, was believed to have enough potash to supply the world for over 2000 years. During 1927 examination of three new territories as a source of supply was in progress. The Dead Sea in Arabia was being prospected by a group of English capitalists, while in Russia the potash deposits in the Ural Mountains were under consideration, and the potash deposits in western Texas and eastern New Mexico were being explored and exploited. In Europe and Japan the consumption of potash had increased by over 45 per cent since 1913, but in the United States the consumption had increased but 6 per cent. Local producers in the United States supplied about 10 per cent of the domestic requirements, the largest factor being at Trona Lake, Cal.; while the second largest producer was at Baltimore, where 3500 tons of K_2O was produced from distilling waste. The U. S. Bureau of Mines reported for 1926 that 7 plants produced 46,324 short tons of crude potash, with an available content of K_2O of 23,366 tons. The sales from these plants was stated at 51,369 tons of crude potash with available content of K_2O of 25,060, with a value at the plant of $1,083,064. In 1926 potash salts for use in the American fertilizer industry were imported to the amount of 859,422 short tons with a K_2O content of 245,700 tons, valued at $13,635,154. For use mainly in the chemical industries, potash salts to the amount of 47,941 tons, with a K_2O content of 20,580 tons and a value of $4,796,711, were imported during the year, making a total value of potash materials imported of $18,431,865. See FERTILIZERS.

With reference to the studies undertaken by the government (referred to in the YEAR BOOK for 1926, p. 157) under the $100,000 appropriation from Congress to investigate domestic potash-bearing lands with a view to making the country less dependent on foreign potash, the U. S. Department of the Interior reported that the first core drilling operation took place on public land in Eddy County, New Mexico. About 50 beds or groups of beds containing 2 per cent or more of potash were found between depths of 838 to 1770 feet. The hole was 1847 feet. Fourteen beds ranged in thickness from 1 in. to 6 feet, 2 inches and in potash content from 3.10 to 16.47 per cent. Polyhalite was the most abundant potash-bearing mineral found in the cores, occurring in 11 of the 14 beds. Carnallite, one of the principal potash-bearing minerals in the German fields, was encountered in three of the beds, marking the first time this mineral had been noted in samples from the Texas-New Mexico field. Its occurrence in New Mexico in definite beds, even though the thickness shown in the core was only 8 inches, leads to the hope that, as exploration progresses, beds of minable thickness will be found. Further examination of cuttings from wells drilled for oil in potential potash territory in the Southwest has shown potash content in 20 wells in Texas ranging from 3.91 to 12.40 per cent and in eight wells in New Mexico from 2.71 to 10.41 per cent.

Many land owners or lessees who were within one mile of the potash drill site in New Mexico declined to sign a contract, as provided in the potash act, to reimburse the government for the expense of exploration, therefore the government is said to have been automatically excluded from areas where better showings had been indicated by drill cuttings. Under the conditions named it is surprising that the results obtained are as favorable as they are.

Alleging attempts to extend the European monopoly in potash to the United States, the Department of Justice on April 7 filed an injunction suit in the U. S. District Court in New York City against a group of German and French manufacturers. The petition charged that, beginning May 1, the French and German companies had agreed to continue the division of the United States business, and, in addition, to select a single exclusive selling agency with which they will agree upon the prices to be charged for the potash sold in the United States.

POTATOES. The potato production in 1927 of 26 countries reporting to the International Institute of Agriculture, Rome, was estimated at 4,730,830,000 bushels, an increase of 21.2 per cent over the production in 1926 and of 10.5 per cent above the average yield for the five years 1921–1925, while the increases in acreage for these periods were only 3.5 per cent and 2.6 per cent respectively. A favorable season and an increased acreage in the most important producing countries, notably in Germany, Poland, France and Czechoslovakia, were largely responsible for the good results of the year. The production in the leading countries was reported as follows: Germany 1,395,341,000 bushels, Poland 1,115,348,000 bushels, France 629,960,000 bushels, Czechoslovakia 283,198,000 bushels, Spain 130,899,000 bushels, Belgium 111,359,000 bushels, England and Wales 111,328,000 bushels, and the Netherlands 90,021,000 bushels. Canada produced 79,878,000 bushels or 1,258,000 bushels less than in 1926 and 11,680,000 bushels less than the average for the five years 1921–1925. In South America, in the crop year 1926–27, Argentina produced 35,386,000 bushels, Chile 10,027,000 bushels, and Brazil 10,014,000 bushels. The Department of Agriculture estimated that the production of the United States for 1927 amounted to 402,149,000 bushels on 3,505,000 acres, the yield per acre being 114.7 bushels. This record compared with a yield of 354,328,000 bushels, an area of 3,122,000 acres, and an average yield per acre of 113.5 bushels in 1926. The increase in acreage in 1927 was largely in the Northwestern States.

The Department of Agriculture pointed out during the year that the average yield per acre in the last forty years has been increased by 39 per cent and the average annual production, as due to the higher acre yield, by 115,000,000 bushels. The average farm price per bushel Dec. 1, 1927, was 96.4c. as compared with $1.414 the year before, and at these prices the total value of the two crops was $387,870,000 and $501,017,000 respectively.

All the states reported potato production, and the leading states and their yields were as follows: Minnesota 33,128,000 bushels, Maine 32,092,000 bushels, New York 28,620,000 bushels, Pennsylvania 26,400,000 bushels, Idaho 24,380,000 bushels, Wisconsin 23,920,000 bushels, and Michigan 23,120,000 bushels. The average yield per acre in Maine was 226 bushels and in Idaho 212 bushels, all other states producing less than 200 bushels per acre, including seventeen states with less than 100 bushels per acre. The average farm price per bushel on Dec. 1, 1927, ranged from 50c. in North Dakota to $1.90 in South Carolina. The cost of potato production in 1926, according to a study made by the Department of Agriculture, was 52 c. per bushel in the North Central, 56c. in the Western, 64c. in the Central, 69c. in the Southeastern, 73c. in the Eastern, 74c. in the Northeastern, and 77c. in the West South Central States. In the year ended June 30, 1927, the United States exported 2,092,000 bushels of potatoes and imported 380,816,000 pounds.

The crop of 1927 was attacked by late blight in the northeastern and central potato regions and suffered from drouth and frost in the North Central States. Efforts continued to be put forth during the year, by potato-growers' organizations, to improve potato marketing methods. A report of a new world record of production, a yield of 64,707 pounds or over 1000 bushels, of "British Queen" potatoes on an acre of the F. H. Rindge Delta tract at Stockton, California, appeared in the press toward the close of the year.

POTTERY, Ancient. See Anthropology, under *New World Ethnography.*

POTTHAST, Ernest Henry. American artist, died in New York on March 10. He was born in Cincinnati, Ohio, on June 11, 1857, and at an early age became a pupil at the Cincinnati Academy, afterwards studying art at Antwerp, Munich, and Paris. He was elected a member of the National Academy in 1906. Among his exhibited museum paintings are "Dutch Interior" at the Cincinnati Museum; "On the Beach" and "Bathers" at the Brooklyn Institute Museum; "The Pilot" at the Hackley Art Gallery, Muskegon, Mich., and "A Holiday" at the Chicago Art Institute.

POTTS, Captain Templin Morris. American naval officer, died at Pasadena, Cal., March 22. He was born in Washington, D. C., Nov. 1, 1855, and educated at the Emerson Institute, Washington. He was graduated from the United States Naval Academy in 1876, and subsequently won successive promotions to become captain in 1908. He served on several battleships and was commander of the *Georgia* in 1909. For one year, 1905, he was naval governor of Guam. When he was retired on June 30, 1913, he was holding the post of director of naval intelligence at Washington.

POULTRY. See Livestock.

POULTRY CONGRESS. See Livestock.

POULTRY DISEASES. See Veterinary Medicine.

POUNDS, Charles Courtice. British actor, died in London on December 21. Born in London in 1862, he was educated at St. Mark's College, Chelsea, and studied at the Royal Academy of Music. He made his first appearance on the stage at the Savoy in 1881 in the chorus of *Patience*. On his first visit to America, in 1885, he played Nanki Poo in *The Mikado* at the Fifth Avenue Theatre. After playing the same part in Berlin, Hamburg and Vienna, he returned to the United States for three seasons, singing in *Ruddigore*, *Princess Ida*, and other light operas. He returned to Europe and again visited New York in 1904 and 1914. In 1916 he appeared as Ali Baba in Oscar Asche's *Chu Chin Chow* in London, and continued to play this part throughout the five years' record run at His Majesty's Theatre.

POWELL, George Townsend. American agriculturist, died at Brookfield, Mass., on May 20. He was born in Dutchess County, N. Y., Mar. 30, 1843, and educated at Harvard. He became widely known for his articles and lectures on horticulture and agriculture. He was the founder of the Agricultural Experts' Association, and from 1910 to 1914 was president of the New York Horticultural Society. He was among those interested in the establishment of the School of Practical Agriculture at Briarcliff Manor, N. Y.

POWER, Frederick Belding. American chemist, died at Washington, D. C., March 27. He was born at Hudson, N. Y., and educated at the Philadelphia College of Pharmacy and the University of Strassburg. He served as assistant professor of analytical chemistry at the Philadelphia College of Pharmacy in 1881–83; professor of pharmacy and materia medica at the University of Wisconsin 1883–92; director of the laboratories of Fritzsche Brothers in 1892; and from 1896 until 1914 he was director at the Wellcome Chemical Research Laboratories in London, England. In 1916 he became head of the phytochemical laboratory of the Bureau of Chemistry, Washington, D. C. Dr. Power made valuable original contributions to the chemistry of plant products, especially to our knowledge of both volatile and fatty oils, and, with Professor Roger Adams of the University of Illinois, he discovered a process for the manufacture of synthetic chaulmoogra oil, the specific which has proved effective in the treatment of leprosy. Dr. Power was the recipient of many decorations for pharmaceutical and chemical research work and in 1922 he received the Flueckiger gold medal.

POWER PLANTS. The capacity of central station power plants in the United States at the end of 1927 was nearly 29 million kv. a. (close to 40 million horse power) and the capacity of industrial power plants approximates 30 million horse power, making a total of 70 million horse power, exclusive of mines, electric railways, office buildings, hotels, public buildings, etc., on most of which there are no authentic data. If these be included, it is probable that the aggregate capacity of stationary power plants in the United States will approximate 80 million horse power.

During 1927 public utilities spent $235,000,000 on new plants or extensions to existing stations, of which nearly two-thirds went into steam plants and one-third hydro-electric. This accounted for an increase in capacity of about 3,750,000 kv. a. Of this 2,600,000 kv. a. was in steam. Moreover, of the 75 billion kilowatt-hours generated by utilities during 1927, as reported by the U. S. Geological Survey, 60 per cent was from fuel.

Relatively few new steam stations went into service in 1927, although many were extended. The most outstanding new plant was the Stanton Station at Stanton, Pa., owned jointly by the American Gas & Electric Co. and the Pennsylvania Power & Light Co. This was to have an ultimate capacity of 400,000 kilowatts of which 100,000 kilowatts had been installed. It burns pulverized coal and employs a steam pressure of 600 pounds.

Additions of considerable magnitude were made to the Crawford Avenue Station in Chicago, Hell Gate in New York, Hudson Avenue, in Brooklyn, Philo at Philo, Ohio, Trenton Channel (Detroit Edison Co.), Colfax near Pittsburgh, the Huntley Station in Buffalo, Long Beach Station of the Southern California Edison Co., and the Edgar Station near Boston. The last named placed in service an additional unit consisting of two 1200-pound boilers serving a 10,000-kilowatt high-pressure turbine, exhausting at 375 pounds to a 65,000-kilowatt turbine-generator. For further information on stations employing high steam pressures, see Steam Boilers.

There had been steady improvement year by year in station efficiency due to improved methods of combustion, greater recovery of waste heat, large units, higher pressures and more advantageous operating conditions. This is reflected in the present average of 1.84 pounds of coal per kilowatt hour as compared with 3.2 pounds of eight years previous. A few of the most efficient stations were attaining close to a pound of coal per kilowatt-hour and the record in 1927 for performance was held by the Columbia Station at Cincinnati which had produced a kilowatt-hour at 12,500 B. t. u. Therefore, although the output of electric generating stations had increased at an unprecedented rate, the quantity of fuel consumed by utilities had increased very slowly.

Trends in power station design included the use of larger units, both boilers and turbines, more general employment of higher steam pressures, extensive use of air preheaters and the general adoption of the regenerative cycle for heating feed water. Improvements continued in both stokers and pulverized fuel equipment, especially the unit mill which was being applied to several large stations as well as small ones.

In the industrial power plant field large economies were also being effected through the installation of improved equipment. Higher steam pressures were being employed, pulverized coal or improved stokers applied, and high back-pressure or bleeder turbines used to provide a more economical supply of steam for process.

PRAIRIE PROVINCES. The name applied to the three Canadian provinces of Manitoba, Saskatchewan, and Alberta. Total area, 758,817 square miles (Manitoba, 251,832; Saskatchewan, 251,700; Alberta, 255,285). Population, according to the census of 1926, 2,067,682 (Manitoba, 639,056; Saskatchewan, 821,042; Alberta, 607,584). For production, etc., consult the articles on the respective provinces.

PRATT INSTITUTE. A non-sectarian educational institution, at Brooklyn, N. Y.; founded in 1887, and composed of four schools: Fine and applied arts, household science and arts, science and technology, and library science. The 1927 autumn enrollment was 4419, divided as follows: Arts, 1602; household science, 893; science and technology, 1899; library school, 25. There were 175 members on the faculty, and 79 special lecturers. The library contained 140,000 volumes. President. Frederic B. Pratt, A.M., LL.D.

PREHISTORY. See Anthropology.

PRENTER, William B. American labor leader and Locomotive Brotherhood president, died at Cleveland, Ohio, December 7. He was born in Philadelphia in 1855, and when six years old his parents took him to Belfast, Ireland, to be educated. As soon as he finished his schooling he became a telegraph operator, and when 19 years of age he went to Canada and began firing a locomotive on the Grand Trunk Railway. He was repeatedly reelected as an officer of the Brotherhood of Locomotive Engineers and was chairman of the Ottawa convention of the Brotherhood in 1896. His rise from that time on in the Brotherhood's affairs was sure and rapid, ending in his elevation to the presidency on June 17, 1925. He held high posts in ten of the Brotherhood's banks and in several investment companies.

PRESBYTERIAN CHURCH. The Presbyterian Church, with the Reformed Churches, rests on features of the Reformation brought forward by Zwingli and Calvin. It consists of bodies in the United States, the British Isles, and elsewhere, following the doctrinal and ecclesiastical system developed in Holland and France and more fully in Scotland under John Knox. The distinctively Presbyterian bodies of the United States are derived for the most part from bodies in Great Britain, but are in many respects similar to the Reformed churches in the United States, sprung from parent bodies in other parts of Europe, and particularly in Holland. The following organizations in the United States bear the Presbyterian name: Presbyterian Church in the United States of America; Presbyterian Church in the United States (South); Cumberland Presbyterian Church; United Presbyterian Church; Colored Cumberland Presbyterian Church; Reformed Presbyterian Church, General Synod; and Associate Synod of North America also known as the Associate Presbyterian Church. The Presbyterian churches of the United States have general affiliations with the Alliance of Reformed Churches throughout the World, and also with the General Council of the Presbyterian and Reformed Churches in America, a similar organization of purely American scope. Steps were taken at a meeting of the American section of the World Alliance at Richmond, Va., in 1925 to effect a union of the world and American bodies.

Presbyterian Church in the United States of America. This is the largest body of the denomination, and is nationally organized in every State of the Union, with official mission stations in Alaska, Cuba, Porto Rico, and foreign lands. It comprised, in 1927, 46 Synods and 299 presbyteries. The annual General Assembly met in 1927 in San Francisco, California, May 26–June 1. Statistics for the year showed that there were 9961 ministers, 48,916 elders, 20,908 deacons. Churches numbered 9497 and communicants 1,927,268, an increase of 18,157 over 1926. Sunday school membership totaled 1,596,515, an increase of 15,735. The amount of $62,782,907 was contributed for all purposes, of which $5,093,460 was devoted to national missionary work; $3,924,903 to foreign missionary work; $1,681,721 to Christian education; and $46,612,753 to congregational expenses. The denomination maintained 56 colleges and 13 theological seminaries. The official medium of the denomination is the *Presbyterian Magazine* (monthly). Privately owned Presbyterian periodicals are *The Presbyterian Advance, The Presbyterian Banner*, and *The Presbyterian* (all weekly). Robert E. Speer, D.D., LL.D., senior secretary of the Presbyterian Board of Foreign Missions, was Moderator of the General Assembly in 1927–28. The chief permanent officer is the Stated Clerk, who in 1927 was the Rev. Lewis S. Mudge, D.D., LL.D., 514 Witherspoon Building, Philadelphia, Pa.

Presbyterian Church in the United States (South). This division of the Presbyterian denomination covers the territory commonly known as the Southern States. It was composed in 1927 of 17 Synods and 91 Presbyteries, with 3591 organized churches and 2280 ministers. The ruling elders numbered 15,715, and deacons 17,146. The total church membership was 439,621. The Sunday school enrollment was 422,343. The contributions for the year were: Current expenses, $10,308,788, a gift of $22.35 per capita; and benevolences, $4,897,543, a gift of $12.24 per capita; making the total gift per member $34 59. This church had sent out and was supporting 499 missionaries in six districts, Africa, Brazil, China, Japan, Korea, and Mexico. These missionaries were assisted by 3606 native workers. In the six countries there were 47,879 church members and 71,331 members of Sunday schools. The office of the General Assembly and Bureau of Vacancy and Supply is located in Dallas, Texas. The Rev. J. D. Leslie, D.D., LL.D., is Stated Clerk and Treasurer.

PRESBYTERIAN CHURCH OF NORTH AMERICA, United. A branch of the Presbyterian Church formed by the union of the Associate and the Associate Reformed churches (Secession and Covenanter) in Pittsburgh in 1858. It represents the earlier covenanter and secession movements of the denomination in Scotland, and inherited from them whatever was distinctive in the views and usages of the two branches. In organization and government it is in accord with other Presbyterian bodies, having the same courts-session, presbytery, synod and general assembly, and observing the same general methods of baptism, admission to church membership, and ordination to the ministry. The General Assembly convened in Washington, D. C., May 25, 1927. On that date there were 11 synods, 57 presbyteries, 902 congregations, 926 ministers, 5005 ruling elders, and a church membership of 171,678 in the United States. The total membership, including missionary fields, was 224,491. The Sabbath school enrollment was 176,725. There were 952 young people's societies, with a membership of 26,715; and 1646 missionary societies. The average pastor's salary was $2452; congregational expenses, $4,071,000; total contributions, $8,099,936, an average per member of $35.53; missionary contributions, $2,000,805, an average of $11.65 per member. The denomination supported 400 men and women in four foreign mission fields, and 411 men and women in homeland missions. It carried on medical work in 31 foreign hospitals and dispensaries; conducted educational work in 333 schools at home and abroad; maintained 9 colleges and 4 theological seminaries at home and abroad; reached 35,000 youth in its schools and colleges, and graduated more than 600 young men and women. During the year new houses of worship were erected at a cost of $446,800. The estimated value of the church property of congregations was $27,386,747; value of parsonages, $3,393,545; value of property and permanent funds of the mission boards, $8,346,917; value of property and permanent funds of the colleges and seminaries, $6,853,124; total value of property and permanent funds of the denomination, $45,980,333. The organ of the church is the *United Presbyterian*, a church-owned, yet independent, weekly, published at Pittsburgh, Pa. M. G. Kyle, D.D., LL.D., of St. Louis, Mo., was the Moderator of the General Assembly and D. F. McGill, D.D., LL.D., Bellevue, Pa., was Stated Clerk.

PRESIDENTS, College. See Universities and Colleges.

PRIMATES. See Anthropology, under *Physical Anthropology*.

PRINCE EDWARD ISLAND. A Maritime Province of Canada; the smallest province in the Dominion, situated at the mouth of the Gulf of St. Lawrence and separated by Northumberland Strait from the mainland of New Brunswick and Nova Scotia. Area, 2184 square miles; population, according to the census of 1921, 88,615. The capital is Charlottetown, with a population of 12,347. The chief industries are agriculture, stock raising, fishing and the breeding of silver foxes. (For particulars of agriculture and livestock, see under Canada.) The value of pelts marketed and live foxes sold for breeding purposes in 1925 was estimated at $3,000,000. The total value of fisheries in 1925 was $1,598,119 as against $1,201,772 in 1924. The revenue for 1925 was $740,076 and the expenditure $745,338. The public debt on Dec. 31, 1925, was $2,490,200 from which should be subtracted $1,335,072, standing to the credit of the province at Ottawa. The province is under a lieutenant-governor and a legislative assembly of 30 members, elected for four years, a property qualification being required in the case of one-half the members and the other half being elected by universal male and female suffrage. Lieutenant-governor, Frank R. Heartz; Premier, Attorney-General, Secretary-Treasurer, J. D. Stewart; Public Works, H. F. McPhee; Ministers without Portfolio, J. W. P. McMillan, Murdock Kennedy, Adrian Arsenault, James A. McNeil, and Leonard Wood.

PRINCETON, Battle of, Anniversary. See Celebrations.

PRINCETON UNIVERSITY. A non-sectarian institution for the higher education of men at Princeton, N. J.; founded in 1746. The 1927 autumn enrollment totaled 2450, of whom 2254 were undergraduates and 196 graduate students and fellows.

The total endowment in 1926 was $16,930,000; the total income $2,106,000; and the total expenditures were $2,044,000. The number of books in the library was 625,000, exclusive of pamphlets, broadsides, manuscripts, etc.

The summer school of geology and natural resources, organized in 1926 (see 1926 Year Book), to facilitate for American and European students the study of the natural resources of North America, devoted its tour in 1927 to Canada. The total personnel of 24 included representatives of the following universities: Edinburgh, Geneva, Copenhagen, Brown, Clark, Cornell, Davidson, North Carolina, Princeton and Yale. There were in 1926–27, 273 faculty members and 44 assistants.

Important gifts to the library were: an endowment from Mrs. P. L. LeBrun, for the development of the valuable Montaigne and Rabelais collection, presented two years previous in memory of her husband; the presentation by his widow of the fine private library of Charles Richard Williams, '75, editor, poet and scholar. A unique gift was the Arthur Sachs Foundation, of $150,000, from Arthur Sachs of New York, to finance *Art Studies*, a publication issued jointly by the Department of Art and Archæology at Princeton and the Division of Fine Arts at Harvard. Another gift reported was a university theatre, given by Thomas N. McCarter, '88. Among the building operations in 1927 were the following: the completion of Lockhart Dormitory, and the extensions to the Graduate College and to the gymnasium; progress on the new chapel; the enlargement of McCormick Hall for the school of architecture; the beginning of the Engineering Building and the Chemical Laboratory.

A significant development of the year was the marked expansion of the industrial relations section of the department of economics, to meet the increased call for its services, not only from students and faculty at Princeton, but from all parts of the United States and such far countries as Australia and South Africa. President, John Grier Hibben, Ph.D., Litt.D., LL.D.

PROCOPE, Hjalmar. Finnish poet and playwright, died in Helsingfors, Finland, on September 25. He was born in Helsingfors on April 28, 1868, and was educated at the University of Helsingfors where he received the degree of M.A. in 1897. Having received a scholarship from the Finnish government in 1908 he went to Denmark, Germany and France to study the drama. Procope received several prizes for his literary efforts from the government of Finland and the Swedish Literary Society. His many published works include the poems *Dikter* (1900); *Roda Skyar* (1907); *I Sanden* (1915); *Selected Poems* (1920); and the plays *Belsasaro gastabud* (1905); *Medaljongen* (1922).

PRODUCE. See Horticulture.

PROHIBITION. The status of this great public question remained very much the same as during the previous year: the dry States continued dry and the wet States remained wet. General Lincoln C. Andrews resigned his post on August 1, and was supplanted by Seymour Lowman; the Prohibition Unit was made a new bureau in the Department of the Treasury; Wayne B. Wheeler (q.v.) general counsel of the Anti-Saloon League died and there followed a reorganization; the debate continued, Senator Borah taking an active rôle, and statisticians on both sides continued to quote figures pointing to the results of the Eighteenth Amendment. In short, it was a year of little progress.

Administration. Secretary Mellon's hand in the management of Prohibition enforcement was shown increasingly as the year progressed. For one thing, important administrative changes were made. Roy A. Haynes, Harding appointee and Anti-Saloon League favorite, was definitely dropped from the service when in May Dr. James M. Doran was appointed Commissioner of Prohibition and Major Herbert H. White was named Assistant Commissioner (Mr. Haynes' former post). At the same time General Andrews, Assistant Secretary of the Treasury, in charge of Prohibition enforcement, announced his resignation to take effect August 1. Word came, too, from Mr. Mellon's office that the new incumbent was to be Seymour Lowman, ex-Lieutenant Governor of New York, who was considered in many quarters a friend of the Anti-Saloon League. During the closing hours of the Congress, on March 3, was passed a measure that was hailed as making possible the reorganization of Prohibition enforcement. The chief divisions of the act provided for: (1) the placing of enforcement agents under the civil service; (2) the establishment of the Prohibition Unit as an independent bureau, separating it from the Bureau of Internal Revenue; (3) the centralization of authority in the office of the Secretary of the Treasury, (4) the strengthening of the office of Prohibition Commissioner to aid the Assistant Secretary of the Treasury in charge. The year saw several changes in the enforcement districts. The district of Florida was abolished and the State was merged into a new district consisting of South Carolina, Georgia, and Florida. There were other changes in the eastern States. The Bureau continued its policy of decentralization. The offices of supervisors of alcohol and brewery control and of wine control were discontinued as was that of the office of the chief investigator. The new office of chief special agent was created. During the fiscal year 1926–27, prohibition agents made 64,986 arrests, seizing 7127 automobiles and 353 boats. The arrests led to 36,546 convictions in Federal courts with 11,818 jail sentences. Federal court convictions aggregated 4477 years in jail sentences as well as $4,143,040 in fines and forfeitures. During the same period (fiscal year ending June 30, 1927), the Bureau closed 2 concentration warehouses, 2 distillery warehouses, and 2 special bonded warehouses. There were at the end of June 28 concentration warehouses containing 22,053,141.8 gallons of distilled spirits. There were in addition 8 distillery warehouses and 2 general bonded warehouses, containing 1,465,820.1 gallons of distilled spirits, which had not yet been concentrated. At the end of the fiscal year the Bureau was carrying 344 office employees and 3942 field employees.

That the government had entered into the business of encouraging law-breaking through under-cover methods was widely charged. Facts were revealed in a report rendered the Senate by General Andrews as a result of a resolution. It was shown that the government was engaging in the rum-running and rum-selling business and was playing the rôle of spy and agent-provocateur, in order, of course, to trap the large-scale bootleggers. The Prohibition office's report contained the following admissions: (1) That government agents had engaged in rum-running between Canada and New York, purchasing and selling beer, whisky and wine. (2) That government agents operated a poolroom and still at Norfolk, Va., for the "purpose of cleaning up rum traffickers." (3) That government agents operated a bridge whist club in New York City "to enable them to establish intimate relations with smugglers." (4) That a government agent in Peoria, Illinois, pretended to be in the liquor traffic for the purpose of obtaining evidence. The news caused indignation, even in the dry Congress, and was followed at once by a statement from Secretary Mellon that under-cover methods would be abandoned. The New York government night club was disavowed as not having had the sanction of higher officials.

In the summer, Mr. Seymour Lowman announced that the Prohibition Bureau was to be vested with the power of patrolling the border, and that special attention would be given to the Canadian frontier west of Buffalo. According to Mr. Lowman the seepage across the border was considerable and special efforts would be necessary. The Canadian officials reported that declared shipments of whisky from Canada were increasing, for the fiscal year ending March, 1927, totaling $24,000,000 as compared with $16,000,000 in 1925. Discussions were carried on with the Royal Canadian Commission for the purpose of actively enlisting Canadian support in the checking of the illicit traffic. Canada, on its side, complained that American bootleggers were smuggling their wares into the Provinces and poisoning Canadian citizens as well as interfering with the regular whisky industry.

Dr. James M. Doran, Prohibition Commissioner, announced that for 1928 the production of industrial alcohol would be reduced by from 5,000,000 to 10,000,000 gallons. During the fiscal year ending June, 1927, the legal production of alcohol totaled 95,000,000 gallons. The movement was prompted by the fact that considerable quantities of industrial alcohol fell into the hands of bootleggers, though this was the first effort on the part of the government to exert control in this industry.

The tendency to remove the Prohibition enforcement work from politics continued. In September, in a speech in New York State, Mr. Lowman said certain caustic things about Governor Smith's failure to enforce the Eighteenth Amendment, only to be silenced at once by his chief, Mr. Mellon.

At the end of the year there were rumors, not denied, that the Coast Guard's work in fighting rum runners had not proved as effective as was being claimed. The New York newspapers reported that for 1927 the combined forces of the Customs Patrol Service, Marine Police and the Coast Guard, operating from New York, had seized more than $10,000,000 in contraband liquor and alcohol. Forty-six rum ships were captured and 300 men arrested. Stories were current that a new "Rum Row" was in process of being established, "literally in the shadow of the Statue of Liberty, with bases in Staten Island and at North River piers."

DEPARTMENT OF JUSTICE. Assistant Attorney-General Mabel W. Willebrandt, in charge of Prohibition enforcement, reported for the fiscal year ending June 30, 1927, an increase in fine collection and in civil business with a decrease in criminal business. During the year there were 2081 more civil cases terminated than during the previous year and there were 1859 more judgments in favor of the United States. Judgments in favor of the United States totaled $352,097.25; the amount of fines, forfeitures and penalties imposed totaled $5,646,709.09. The Assistant Attorney-General did not seem to think that smuggling by water craft had decreased. But during the fiscal year the government seized 320 domestic vessels engaged in the smuggling traffic as compared with 330 in the fiscal year 1925–26. Court decisions helped to clear the way considerably in the fight on water-craft smuggling. The Supreme Court, in W. E. Dodge vs. United States (November, 1926), affirmed the right of any agency to seize smuggling craft, whether they were in Federal waters or no. In the [illegible] case (May 31, 1927) the Supreme Court upheld the Coast Guard's right to seize American vessels on the high seas, beyond the 4-league limit During the year, to the eight treaties already in force allowing the boarding, searching and seizing of foreign rum-runners when within one hour's run of the coast, the government added two more, one with Spain (effective Nov. 17, 1926) and the other with France (effective Mar. 12, 1927). The Supreme Court in its decision in *The Ford* et al. vs United States (April, 1927), approved the seizure of foreign vessels under these treaties, found the criminal prosecution of foreign subjects legal, and declared that persons abroad conspiring with persons in the United States to violate our Prohibition legislation could be prosecuted if apprehended in this country. Under the above treaties 25 British ships were seized during the year; 8 of these were forfeited; 2 were dismissed; 1 was appealed: and 3 were released. Some of the hauls were quite large. The first of these foreign conventions was signed with Great Britain, May 22, 1924. Since that time 48 vessels have been seized of which 20 were forfeited; 13 cases were pending, 7 dismissed, 2 appealed; 4 vessels released, 1 sold on claims. and 1 wrecked.

Another important Supreme Court decision, this time unfavorable to Prohibition enforcement, was handed down December 11 when the court ruled that liquor seizures by New York State troopers were illegal. The prosecution had contended that the troopers were acting as Federal agents but this the court denied and held the seizures illegal in view of the fact that search warrants had not been applied for. The decision was significant in view of the fact that in 1927 five States—New York, Maryland, New Mexico, Nevada, and Montana—had no Prohibition enforcement laws and therefore the troopers could not take the initiative unless they strictly abided by Federal law, that is to say, a search for evidence could not be made without a search warrant.

Physicians' Prescriptions. Early in the summer the physicians assembled at their convention, in Washington, of the American Medical Association, indicated that they meant to give battle to the government's insistence upon limiting the amount of whisky prescribable. The existing law permitted doctors to prescribe a pint of whisky every ten days per patient. The proposal of the American Medical Association called for unlimited prescriptions of whisky, subject, however, "to such reasonable restrictions as may be thought wise and best after a conference with the head of the Prohibition Department." About the question there was considerable debate; how far alcohol was necessary in modern therapy; who is to guarantee that physicians will not prescribe whisky for well persons, etc. But about this fact there was little questioning: that it was up to the individual physician to decide for himself, and not by government fiat, that whisky had medicinal properties necessary in the curing of ill persons.

Anti-Saloon League. The outstanding event in the history of this organization, for the year, was the death of its general counsel, Wayne B. Wheeler (q.v.) Sept. 5. His death was followed by League reorganization. See Anti-Saloon League.

One of the results of the League's convention at Washington in December was the declaration of a new policy. League forces were to be divided into two: the old activities of political pressure and legislation seeking were to continue under the general superintendent, Dr. F. Scott McBride (successor to the late Wayne B. Wheeler); a new department for education and propaganda was to be set up under the head of Ernest H. Cherrington. For the latter a fund of $10,000,000 was to be raised to carry on the work for five years Mr. Cherrington had proved his worth in the field of publicity for under his direction there had been successfully functioning the Intercollegiate Prohibition Association and the World League Against Alcoholism. The latter's agent was the well-known "Pussyfoot" Johnson who had already established contacts in 35 countries. Dr. McBride, on the other hand, was a strong proponent of Mr. Wheeler's methods, the chief of which was to keep Congress in line. Consonant with this policy, the League consented to move its headquarters from Westerville, Ohio, to Washington. Mr. Cherrington's campaign was released to an early start when S. S. Kresge, five and ten cent store promoter, announced that he was giving half a million dollars toward the work (December 8). Before the banquet at which the announcement had been made was over an additional $150,000 had been pledged.

Debate. *Pro.* In the autumn Senator Boarah indicated that he planned to force the Republican Party to declare itself on the Prohibition question. Heretofore he had played a lone hand, but with the acquisition of power as head of the Republican Radical bloc in the Senate, and with the possibility of becoming the dry leader, Mr. Borah's move had interesting political significance.

Senator Borah attacked the doctrine of nullification and called upon those desirous of seeing the law enforced to sit in the conventions and compel the parties to accept the Eighteenth Amendment in their platforms. The Senator, of course, left himself open to attack. If the Eighteenth Amendment was to be enforced by Federal agencies, why then not the Fifteenth? The point was at once made by Senator W. E. Edge, to which Senator Borah replied that he was ready to back enforcement of the whole Constitution. Southern proponents of Prohibition found more trouble in answering the charge and their statements were made under difficulty.

The battle of statistics continued, Roger Babson and Prof. Irving Fisher leading the Prohibition cohorts. Professor Fisher denied that increased arrests for drunkenness, as a recent survey showed, indicated the failure of Prohibition. He declared "that while from 1920 to 1923 there was a tendency to revert to pre-Prohibition conditions, it appears, if these data be a true cross-section of conditions in America, that the movement of reaction has now spent itself."

More interesting, and more important, were the views of health authorities and vital statisticians. At a meeting of the American Public Health Association (Cincinnati, October 19), Dr. Louis I. Dublin declared that beginning with 1920 there had been a continuous rise in deaths from alcoholic poisoning. He denied that it had been established that Prohibition was advancing the health of the adult male population. In fact, male death rates over 35 years had increased pointed for life, and a legislative assembly of 85 members elected for five years. Quebec is the only province in Canada in which women are not enfranchised or eligible for election to the legislature. Lieutenant Governor in 1927. N. Pérodeau; Premier, Attorney-General, and Minister of Municipal Affairs, L. A. Taschereau; Lands and Forests, H. Mercier; Treasurer, J. Nicol; Secretary, A. David; Agriculture, J. E. Caron; Colonization, Mines and Fisheries, J. E. Perrault; Public Works and Labor, A. Galipeault; Roads, J. L. Perron; Ministers without Portfolio, E. Moreau, L. Lapierre, J. H. Dillon.

QUEENS COLLEGE. A college for women at Charlotte, N. C.; founded in 1771; non-sectarian in purpose, but under the direction of the Presbyterian Church. The enrollment for the autumn of 1927 was 360. There were thirty-two members in the faculty, of whom a vice president and an assistant in modern languages were added in 1927. The library contained 8663 volumes. A new building, costing $85,000, combining refectory and dormitory space, was added in the summer of 1927. The income for the year was $130,000. President, William H. Frazer, D.D.

QUEENSLAND. A state in the Commonwealth of Australia situated north of New South Wales; the second largest of the constituent Australian states. Area, estimated at 670,500 square miles; population, according to the census of 1921, 755,972; estimated, July 1, 1927, 885,741. The movement of population in 1925 was: Births, 20,282; deaths, 7545; marriages, 6471. The immigrants in the same year numbered 93,979 and the emigrants, 82,274. Capital, Brisbane, with a population in 1926 (10-mile radius), of 274,260 (census).

During 1925 there were 1707 state schools (including 13 high schools and 156 provisional schools) with 4227 teachers and an average daily attendance of 106,994. The total value of all crops in 1926 was £12,181,917 as compared with £12,526,609 in 1925. The principal crops are green fodder, sugar cane, corn, wheat, cotton, hay, and bananas. The total value of the mineral production in 1925 was £2,012,677. Since the discovery of the gold fields in 1858 the value of the gold output, to the end of 1925, was £85,190,579. Coal is also an important mineral product (1,177,173 tons produced in 1925), and among the other mineral products are copper, tin, wolfram, lead, cobalt, etc. In 1925–26 the imports amounted to £13,756,654 and the exports to £26,384,916. The registered shipping in 1925 consisted of 145 sailing vessels of 2300 net tons and 86 steamers of 24,425 net tons. On June 30, 1926, 6240 miles of railways were open, of which 5964 were being worked.

Executive power is vested in a governor, who acts through a responsible ministry; and legislative power in a single chamber or legislative assembly of 72 members elected for three years (the legislative council was abolished in 1922). Governor in 1927, Sir T. H. J. C. Goodwin (appointed February, 1927); Lieutenant-Governor, W. Lennon; Prime Minister, W. McCormack.

During the first week in September the Labor Government of Queensland and the Railway Union had a short but severe struggle. The railway workers went on a strike and refused to handle the products of a sugar mill which was put on the "black list" because of trouble between the owners and the employees. The government which owned the railway met the situation by discharging all employees because of the impossibility of operating the road. At the same time it offered to reinstate all men who would promise to abide by the regulations of the railroad. The government offered temporary but practically futile relief by substituting motor transportation in the affected area, but the strike virtually tied up most of the business of the State. For a time there was a fear that a sympathetic strike might be called in the other states of the Commonwealth. The Labor government remained firm, however, and appeared to have the support of the other states as well as of the Commonwealth Government. The result was the complete breakdown of the strike on September 10, and the signing of the Government's agreement by the railway workers.

QUICKSILVER. In 1927 the world production of quicksilver was estimated at 115,000 flasks of 75 pounds each, or in excess of the output for both 1926 and 1925, when 104,000 flasks was the estimated world's production. Also, 1927 witnessed the highest prices ever recorded for the full period of the year, rising in the United States from about $100 per flask at the beginning of the year to $130 towards its end. Accordingly, the United States production increased from 20 to 25 per cent over the 7642 flasks which were reported in 1926. Outside of the United States the greatest increase was in Spain, where the Almaden Mines had a production of 52,500 flasks for the season closed on July 1, 1927, which was greater than any year previously reported. In Italy the production in the same period was said to be about the same as that of Spain, the Monte Amiata district increasing its production while the old Idria Mine in the Trentino, formerly Austrian territory, suffered a decline. In the United States the New Idria Mine in California was the largest producer, with the Chisos Mine in Brewster County, Texas, said to be second.

RABIES. An annotation in *The Lancet* (London) for July 16 summed up the status of this malady by stating that outside of Great Britain, Switzerland, and the Scandinavian countries it was still a scourge. The Pasteur treatment of active immunization did not reach a large share of the world's population, and since it must be given to the bitten at once it is not possible to be sure as to the proportion of bites which would have given rise to the disease. Statistics showed that a larger number of people were constantly seeking to benefit by the treatment. According to a recent computation by some Austrian physicians, the expectancy of death in the untreated bitten, the animal being shown to have been rabid, is 10 per cent, while in the bitten who are treated the expectancy of death is less than 1 per cent, including those who reach the institutions at a relatively late period. There had been no essential change in the mode of treatment since 1885, but there was a notable lack of standardization among the various institutes and the emulsion used in inoculation was prepared in a variety of ways. Recently the Phillips method of preparing the emulsion appeared to be responsible for an unusual record—but a single death from rabies in 1540 bitten treated patients. This figure was far below the average obtained in the numerous institutes. In theory this method should be tested everywhere, but, judging from the past, each institute will cling to its own procedure.

corporated in a general church programme adopted triennially.

In 1926 operating on a balanced budget the total expenditures were $3,866,831.63. Of this sum the total expenditure for missions, domestic and foreign, was $2,826,230.07, divided in practically even amounts between the domestic and foreign fields. The number of missionaries supported in whole or in part by appropriations through the Department of Missions during the year 1926 was as follows: American missionaries abroad, men 204, women 235; native staff abroad, men 1396, women 784; American missionaries in the United States, men 560, women 113; native staff in the United States, men 100, making a total of 3,392 persons representing the missionary staff in 1926. During the year 48 new missionaries were appointed.

In 1927 there were reported 6207 clergy, an increase of 48 over the preceding year. The total number of communicants was 1,218,941, an increase of 17,954 over the preceding year. The total contributions to all causes within the Church were $44,743,842.64, an increase of $1,430,126.06 over the preceding year. In 1927 there were 6000 Church schools, with 495,894 pupils, directed by 58,462 Sunday school teachers, an increase of 1481 over 1926. The fifteen theological seminaries of the Church reported a decrease of nine in the number of candidates for the ministry.

The National Council is assisted in its work by a group of coöperating agencies. The Woman's Auxiliary, through a thank offering each triennium, contributes nearly $1,000,000 in that period for its work. Other coöperating agencies are the Brotherhood of St. Andrew for men; the Daughters of the King; the Guild of St. Barnabas for nurses; the Churchwomen's League for Patriotic Service; the Knights of St. Paul, the Knights of St. John, the Knights of Washington, and the Order of Sir Galahad, for boys; for girls and young women, the Girls' Friendly Society in America; for young people in general, the Young People's Fellowship. The Church Mission of Help is notable among affiliated organizations dealing with a wide range of Church interest and activity. The Church publishes *The Spirit of Missions, The Church at Work,* and *Bulletins* of the National Council, together with material dealing particularly with each department of the National Council. Six independently owned publications make an important contribution to the cultural life of the Church: *The Living Church,* weekly; *The Churchman,* weekly; *The Witness,* weekly; *The Southern Churchman,* weekly; *The American Church Monthly;* and *The Chronicle,* monthly. In addition there are 80 monthly diocesan publications in the home field and a score of others in the mission field.

The year 1927 was marked by the death of two among the bishops of the Church: the Rt. Rev. William Cabell Brown, D.D., of Virginia, and the Rt. Rev. Edwin Stevens Lines, D.D., of Newark (N. J.), who were succeeded in each case by Coadjutor Bishops previously elected: the Rt. Rev. Henry St. George Tucker, D. D., in Virginia, and the Rt. Rev. Wilson Reiff Stearly, D.D., in Newark. The Rt. Rev. Thomas Casady, of Omaha (Nebr.), was elected Missionary Bishop of Oklahoma to succeed the Rt. Rev. Theodore Payne Thurston, D.D., resigned. The Rt. Rev. Nathaniel S. Thomas, D.D., Missionary Bishop of Wyoming, resigned and the vacancy was not filled during the year. The headquarters of the National Council are in the Church Missions House, 281 Fourth Avenue, New York City

PRUSSIA, prŭsh'ȧ. A constituent republic of the German republic; a kingdom of the German Empire until the October revolution of 1918; proclaimed a republic Nov. 13, 1918. Capital, Berlin. Area, Apr. 1, 1925, 112,625 square miles, as compared with 135,134 square miles before the war; population, according to the census of 1925, 38,054,172, as compared with 40,165,219 in 1910. The later figures for area and population are exclusive of the Saar district, Eupen and Malmedy, and the territory of Upper Silesia which was ceded to Poland; showing a loss to Prussia, as a result of the Treaty of Versailles, of 21,645 square miles and a population of 4,601,626. The movement of population in 1925 was: Births, 824,761; deaths, 478,855; marriages, 297,237. The chief cities with their populations in 1925, according to provisional figures of that census year, are: Berlin, 4,013,588; Cologne, 698,064; Breslau, 554,801; Essen, 468,696; Frankfort-on-Main, 461,849; Dusseldorf, 431,096; and Hanover, 422,435. The accompanying table from the *Statesman's Year Book* for 1927 shows the area under the principal crops and the yield in metric tons for the year 1925:

	Acres	*Tons*
Wheat	2,243,311	2,027,565
Rye	8,887,534	6,226,397
Summer barley	1,843,326	1,485,431
Oats	5,767,396	4,028,840
Potatoes	4,643,879	8,836,890
Hay (meadow)	6,932,318	10,628,112

In 1925 vineyards had an acreage of 39,921 with a yield of 9,411,454 gallons of wine valued at 18,721,144 marks. On Dec. 1, 1925, the livestock included: Cattle, 9,616,560; sheep, 3,177,505; swine, 10,969,519; goats, 2,220,276; horses, 2,712,763; and poultry, 44,001,181. The chief minerals are coal, lignite, iron ore, and salt. The railway mileage, which has been taken over by the federal government, is about 20,000. The government is under a diet and a state council, the members of the former being elected for four years by secret and direct ballot on the basis of proportional representation. The latter is elected by the provincial assemblies on the basis of one for every 50,000 inhabitants. The executive, which exercises the functions of the former king, is vested in the ministry, which is appointed by the prime minister elected by the diet. As a result of the elections of Dec. 7, 1924, the following parties were returned: Social Democrats, 114; Centre (Catholics), 81; German National party, 109; National Socialists, 11; German People's party, 45; Democrats, 27; Communists, 44; Economic party, 11; German Hanoverians, 6; and Polish party, 2; total 450. The Prime Minister in 1927 was Otto Braun (Socialist), appointed Apr. 4, 1925.

PRZYBYSZEWSKI, STANISLAW. Polish dramatist, died at Warsaw on November 23. He was born in 1868 at Warsaw, and educated at Warsaw, Odessa and Berlin. He was the creator of the Polish modern theatre, and was classed as a dramatist of the first rank. One of his plays *Chopin and Nietzsche* gained international fame. Although his plays at one time enjoyed great success in Poland and Germany he suffered during and after the World War.

PSYCHICAL RESEARCH. The Third International Congress of Psychical Research was held at Paris from Sept. 26 to Oct. 1, 1927. The papers dealt for the most part with theoretical questions and clinical reports were in a minority. Illustrative of the trend of the theoretical papers was the one by Sir Oliver Lodge on "Radiant Energy and Metapsychical Phenomena." The abstract thus summarizes his paper:

> In science, a fact of universal range is this: that every psychical phenomenon is accompanied by a physical phenomenon; and that behind the purely material aspects of the universe there is the physical reality, which doubtless implies matter but which goes beyond matter. Physics in particular shows us that "without a unifying factor, matter would be chaotic. . . . We must seek to discover the nature of these imponderables: electricity, magnetism, light." An intermediary is necessary: the ether.
>
> In psychology, the psychical faculties in whatever connection they may lie with the material organism cannot be explained solely on the basis of material cerebral forces. "The ether of the physicists can therefore be of use to psychology." Those who study the metapsychical phenomena are acquainted with facts that have suggested the idea of the reality of an etheric body.
>
> For the study of these metapsychical phenomena, a working hypothesis may be suggested. Here as elsewhere action at a distance is impossible; an intermediary, the medium, is necessary; that is to say, a source of energy to be exploited by the intelligent force that manifests. It is this energy which we must seek to give to the phenomena of metapsychics their highest degree of scientific certitude.

Doctor Ferdinand Cazzamalli read a paper on "Electro-magnetic Waves in Correlation with Certain Psycho-sensorial Phenomena of the Human Brain." A paper on "Some Critical Aspects of the Margery Case" was read by Malcolm W. Bird, of the American Society of Psychical Research. Two papers were read by Dr. Reitz of Leningrad, one on "Clairvoyance," and the other on "The Transmission of Thought."

A number of clinical papers were read, one of the most interesting being that of Dr. Walter Franklin Prince, of the Boston Society, who told how he had succeeded in curing two persons suffering from characteristic paranoias, of the "obsessing spirit" form. His method, as described in the printed abstract, was as follows:

> He creates in the patients, by suggestion, a doubling of personality, the second personality being the presumed obsessing spirit: then he calls up the spirit and engages it in conversation, either directly or by means of automatic writing. The phenomena of obsession decrease progressively.

The International Federation of Spiritualists held a congress at Rochester, N. Y., during the first week of December. Several hundred spiritists, some from distant parts of the world, attended. The congress placed a marker on the site of the Fox Sisters' home, at Hydesville, 30 miles east of Rochester, where modern spiritism is generally regarded to have originated on Mar. 31, 1848, following the rappings reported from a murdered peddler.

Among the significant papers read at the congress was one by George F. Berry, of Manchester, England, confirming the theory that all psychic phenomena were dependent upon the material substance, ectoplasm. Mr. Berry, who was president of the International Federation, confirmed his thesis by citing from the researches made by Dr. W. J. Crawford, of Queens College, Belfast, Ireland. Dr. Crawford's researches also showed, according to Mr. Berry, that mediums often showed loss of weight and actual shrinkage of feet and hands to half the normal size.

BIBLIOGRAPHY. New books on psychical research include the following: Sir Oliver Lodge, *Science and Human Welfare;* Sir A. Conan Doyle, *Phineas;* Mrs. Champion de Crespigny, *The Dark Sea;* J. W. Dunn, *An Experiment with Time;* Casper S. Yost, *Patience Worth;* William Danmar, *Ghostology;* Walter Franklin Prince, *The Case of Patience Worth; The Case for and Against Psychical Research* (Clark University Symposium), edited by Carl Murchison.

PSYCHO-ANALYSIS. According to reports from Vienna at the end of 1927 a break in the ranks of European psycho-analysts was threatened over the question of religion. Keen disappointment was felt in many circles, particularly among Swiss psycho-analysts, over the attack on the general principles of religion carried on by Freud in his latest book, *Der Zukunftillusion,* and this disappointment seemed likely to culminate in an open break.

Curiously enough, Freud's book does not deal directly with psycho-analysis and mentions it only occasionally. It is in the main a plea for scientific as opposed to religious values; science is exalted and religion is scorned as illusory and irrelevant to life. None the less, the fact that it was Freud who had made the pronouncement was likely to be interpreted, both by psycho-analysts and by the lay public, as indicating a genuine incompatibility between psycho-analysis and religion.

"Religious ideas are illusions," Freud declared in a newspaper interview discussing the contents of the book. "They are ideas contrary to the practical world, cosmic ideas coming from the madness which science in the last centuries has done much to dissipate. I know that religion has rendered many services to human culture, but that is not enough and one sees throughout a thousand years of religious life that religion has not bettered mankind to any appreciable extent.

"It is natural to-day, after what science has done for humanity in the last two hundred years, that people are feeling that religion is a burden. . . . We have reached a stage where the intellectual development of humanity is endangered by the superstitions of religion. There are too many instances on record. But we are now at the dividing point when must come complete severance of the two, when one must disappear before the other, which is to say that science will remain.

"I think mankind must renounce all illusions to allow of intellectual progress. It should do so for the benefit that intellectual soundness will be to the race. Man is helpless with religion, but science is a walking stick to support a progressive world. This is because religion neglects actual life for fiction. It cannot be victorious against actuality, which is science."

Hitherto the attitude of Freud, as expressed in his works on psycho-analysis, had been but mildly hostile to religion. In accordance with the general method of psycho-analysis religious phenomena were often explained as sublimations of the sex instinct and as compensations for repression. Despite this tendency to psychologize —and even to sexualize—religious truth, the method of psycho-analysis was accepted by a great many believing Protestants, and even by Protestant clergymen. These found in psycho-analysis a substitute for the confessional of the Catholic Church—the lack of which had been distinctly felt by a great many Protestant thinkers. One of the leading exponents of psycho-analysis in Switzerland was Dr. Oscar Pfister, a Zurich clergyman, and hitherto he had found no difficulty in reconciling Protestant religious doctrine with the general method of psycho-analysis. Freud's latest book, however, was reported to have antagonized him, and he was preparing a reply to the doctrines of *Der Zukunftillusion.* Another critic of Freud's book was Dr. Benedict Storfer, of Vienna, who, after discussing the book with Freud, admitted that it probably would prove a disappointment to those who awaited the last word on the subject of religion. He took the attitude, however, that, though psycho-analysis is a science, it had nothing in contradiction to religion and could be used with benefit by churchmen.

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A special symposium on Feelings and Emotion was held at Wittenberg College, Springfield, Ohio, Oct. 20–23 under the honorary chairmanship of Dr. J. McKeen Cattell. The occasion was the opening of a new psychological laboratory under the direction of Prof. Martin L. Reymert. Among the American psychologists who contributed to the symposium were Professors Cannon, McDougall, Dunlap, Jastrow, Pillsbury, Seashore, Langfeld, Weiss, Hoisington, Howard, Prince, Bentley, Carr, Washburn, Woodworth, Hollingworth, Stratton, Koffka, Gault and Brett. A number of European psychologists also took part in the discussion, either in person, or through contributed papers.

American psychology suffered a serious loss in the death of Prof. Edward Bradford Titchener, of Cornell University, whose career is discussed elsewhere in this YEAR BOOK. (See TITCHENER, EDWARD BRADFORD.) Late in the year from Russia came news of the death of Prof. Vladimir Michaelovich Bechterev on Dec. 24, 1927, at the age of 70 Professor Bechterev was one of the pioneers in the behavioristic approach to psychological science. Indeed it was the publication of the researches which he and his colleague Pavlov had carried out on the conditioned reflexes of animals which initiated the behavioristic movement in American psychology.

Professor Bechterev's latest activity was the founding of the Leningrad Brain Pantheon for the collection and study of brains of eminent men. According to the plan the brains were to be kept in glass bowls with gold name plates attached. Already a number of Russians had bequeathed their brains to this Pantheon, the first bequest having been that of Alexander Konty, writer and critic, who died recently. Chaliapin, the opera singer, had willed his brain, as had also a number of other living persons. On the other hand the relatives of Count Tolstoy refused to permit the removal of his brain to this institution. The idea and purpose of the Brain Pantheon is in line with Professor Bechterev's objective—not to say physiological—outlook on mental phenomena. His psychological writings, as translated into German and French, include: *Die Persönlichkeit und die Bedingungen ihrer Entwicklung und ihre Gesundheit; Objective Psychologie* (1913); *La Suggestion et son rôle dans la vie sociale* (1910); and *Psyche und Leben* (1908).

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May the threefold division of our receptor-conductor-effector mechanisms receive to the full the beneficence of thy cosmic bounty. Bathe our receptors in thy irmethods by which the patient's individual problems would receive adequate attention. It has applied these same experiences to the study of the criminal, recognizing that from the first crime was a behavioristic problem.

"The National Committee knew, to begin with, that the old way of handling this problem, namely of dealing with the crime rather than the criminal, had outlived its usefulness; to treat all men who are guilty under the law of a felony as if they were alike, was flying in the face of everything that we have learned in the present century about human beings, and so the National Committee has taken the position that any programme for dealing with crime that has a reasonable chance of advancing the situation must be founded upon a knowledge of the sort of human material that we are dealing with, namely the criminal."

Dr. White's theory of the criminal echoes sentiments that are now quite current among psychiatrists and abnormalcy psychologists and even among the lay public. In a speech before the New York State Crime Commission Governor Smith urged the appointment of a commission of highly-paid psychiatrists and criminologists to take charge of the sentencing of criminals. The plan was both widely praised and widely criticized, the chief criticisms being that psychiatrists tend to be too easy on criminals and also that there are not enough competent psychiatrists to meet the needs.

An editorial in the *Journal of Abnormal Psychology* (October, 1927) denies that abnormal psychology, in its present state, is altogether ready to solve the problem of crime. The editorial said:

> This is not the place to insist upon the claims of the lawyer to the status of a scientist. But it is only fair to point out that the reactions of his client to the stimulus of common or statute law is a typical psychological phenomenon and that much of the lawyer's art is concerned with a process of conditioning stimulus or response in order to obtain a desired individual or social adjustment.
>
> Law as a stimulus to conduct needs investigation by psychological methods. The law-maker, whether in the person of the lawyer seeking to mold the legal pattern towards the desired decision of his particular case, the judge with his eye upon a historical and logical consistency or the legislator groping for means to a determined social condition, needs a thorough study of legal stimulus and social reaction thereto. Such a study has never been made.

Dr. Abraham Meyerson's *The Psychology of Mental Disorders*, published during the year, is also skeptical of the psychiatrical doctrine of crime. Crime, he believes, is a social and environmental phenomenon, and is conditioned only slightly, if at all, by the innate psychological constitution of the individual. The book, on the whole, is a very sane summary of the present-day theories of abnormal psychology. It treats mental disorders as individual diseases and does not admit the existence of a general state known as insanity.

Another excellent treatise published during the year is Dr. Bernard Hart's *Psychopathology*. Dr. Hart is concerned to demonstrate that psychopathology, despite the air of controversy which hangs over some of its theories, is an established science of which the medical practitioner may well avail himself.

Max F. Meyer's *Abnormal Psychology* is written by an academic psychologist rather than by a medical practitioner. It presents a system—and a system in terms of behaviorism. Other textbooks on abnormal psychology are E. S. Conklin's *Principles of Abnormal Psychology* and J. E. Wallace Wallin's *Clinical and Abnormal Psychology*.

A book of curious interest is *The Invert and His Social Adjustment*, published by "Anomaly" with a preface by R. H. Thoules, a well-known British psychologist. The book is autobiographical in character, and presents the problem of sexual inversion without moral apologies. One of the theses of the author is that inversion differs radically from bi-sexuality, and that it is congenital in character. Referring to the theory that inversion is the result of childhood influences, the author says that if this were so half the human race would be condemned to the tragedy of inversion.

In addition to those mentioned an important book of the year in this field was J. S. Greene and E. J. Wells, *The Cause and Cure of Speech Disorders*.

SOCIAL PSYCHOLOGY. To judge from the year's books, Social Psychology was abandoning its efforts to become a rigid science and was reverting more and more to the humanistic approach on psychological problems. In place of the usual textbook of social psychology, written on the lines of McDougall or of behaviorism, we have a source book of readings and various books on human interest problems. Prof. William McDougall himself—whose *Social Psychology* went through some twenty editions and started an unending controversy on the nature and number of instincts—came forward this year with a book of popular advice on life's problems (everything from medicine to love and virtue included). The author frankly essays the rôle of sophist, selling wisdom on all manner of personal subjects, and doubtless there can be no objection to this sort of rôle provided the wisdom be not marketed under the ægis of impersonal science and provided that it is presented with some breadth of inspiration and style.

For some years now there has existed in Central Europe an interesting offshoot of the psycho-analytic movement in the shape of a school of individual psychology. The leader of the school was Alfred Adler, a Viennese physician who lectured in several American institutions during the past year. His lectures were published in printed form under the title of *Understanding Human Nature*, and the book furnished an opportunity to appraise his doctrines. Although the slogan of the school is "individual psychology" the subject matter of its researches is in reality social psychology. The school takes its cue from the phenomenon of the inferiority complex and its social and individual ramifications. Whether it be organic inferiority or inferiority of social status, the ultimate effect of this inferiority—as observed by the school—is a compensatory drive for perfection. The individual, defeated in one respect, seeks to realize himself in another. The school has hit upon an important truth—although it is one whose nature the philosophers have rather suspected—that the individual is not fixed in his constitution. He is not a creature of fixed instincts and endowments, but a rather a being that is in movement. It is this movement of the individual psyche that this group has set itself to study.

A list of the more important publications of the year in this field is as follows: A. A. Roback, *The Psychology of Character;* William McDougall, *Character and the Conduct of Life;* Havelock Ellis, *A Study of British Genius;* Henri Delacroix, *Psychologie de l'art;* Grace A. de Laguna, *Speech, Its Function and Development;* Mehran K. Thomson, *The Springs of Human Action;* P. F. Valentine, *The Psychology of Personality;* Kimball Young, *Source Book for Social Psychology;* H. L. Hollingworth, *Mental Growth and Decline;* Alfred Adler, *Understanding Human Nature;* A. A. Goldenweiser and W. F. Ogburn, *The Social Sciences in their Interrelations.*

PUBLIC FINANCE, UNITED STATES. A review of public finance during 1927, from the Federal standpoint, centres around the income tax situation and the progress made in collecting installments of debt due from foreign countries. In both particulars the year was of substantial interest. Receipts ran unexpectedly heavy, the year ending June 30, 1927, affording the first opportunity for satisfactory analysis of the changes in the principal sources of revenue and in the distribution of the burden of taxation effected by the revenue act of 1926, which had been approved on February 26 of that year. Total ordinary receipts increased from $3,962,755,690 in 1926 to $4,129,394,441 in 1927, a net advance of $166,638,751. The curtailments of tax rate made under the act of 1926 did not suffice to lessen the actual receipts of the Treasury, but on the contrary the income showed an advance, although the bulk of the increase came from sources other than internal revenue taxation. The accompanying table furnishes a general view of the development of the revenue situation within recent years.

Included in the receipts from income tax were back tax collections which amounted to an unusually large sum—$331,476,826, as compared with a figure about $35,000,000 less than that in 1926. The Treasury was successful in bringing its work much more nearly up to a current condition than had been feasible at any time in the past. Customs duties increased to $605,499,983, an advance of approximately $26,000,000. It was the first time that a year's receipts from customs exceeded $600,000,000. Internal duties of one kind or another had been reduced considerably in the act of 1926, the result being seen in a shrinkage of about $211,000,000 of collections from "other internal taxes." The rate changes which had been made in individual income tax in the act of 1926 were expected to reduce the revenue from that source very materially, but as a matter of fact receipts on that score, like receipts in general, were larger than in previous years, partly owing to larger dividend receipts by individual tax payers and partly owing to the fact that the cuts that had been made were in many cases more apparent than real.

FEDERAL EXPENDITURES. Ordinary expenditures for the fiscal year ending June 30, 1927, amounted (excluding public debt requirements) to $2,640,800,000. The accompanying table furnishes a survey of the principal items of outlay for 1927 as compared with the preceding year.

As is evident from this table, the principal savings for the year were found in interest on the public debt, which was off about $45,000,000, while minor savings were made in two or three other directions, one of which was outlay for local government and supervision of the Indians. On the other hand, considerable increases were observable, chiefly in connection with military outlays and general regulation and con-

ORDINARY RECEIPTS, FISCAL YEARS 1920 TO 1927
[*On basis of daily Treasury statements (unrevised)*]

Year ending June 30—	*Customs*	*Income and profits taxes*	*Miscellaneous internal revenue*	*Miscellaneous revenues, including Panama Canal*		*Total*
				Proceeds from foreign obligations	*All other*	
1920	$322,902,650	$3,944,949,288	$1,460,082,287	$74,296,622	$892,334,542	$6,694,565,389
1921	308,564,391	3,206,046,158	1,390,379,828	114,821,206	605,121,383	5,624,932,961
1922	356,443,387	2,068,128,193	1,145,125,064	75,222,068	464,185,439	4,109,104,151
1923	561,928,867	1,678,607,428	945,865,333	232,989,156	587,744,697	4,007,135,481
1924	545,637,504	1,842,144,418	953,012,618	221,774,675	449,475,487	4,012,044,702
1925	547,561,226	1,760,537,823	828,638,068	183,637,677	459,773,890	3,780,148,684
1926	579,430,093	1,982,040,088	855,599,289	194,237,957	351,448,263	3,962,755,690
1927	605,499,983	2,224,992,800	644,421,542	206,089,173	448,390,948	4,129,394,441

COMPARISON OF EXPENDITURES IN THE FISCAL YEARS 1927 AND 1926, BY FUNCTIONAL GROUPS
[*In millions of dollars*]

	1927	*1926*	*Increase in 1927*	*Decrease in 1927*
Total functional expenditures excluding public debt retirements	2,640.8	2,647.2	....	6.4
Ordinary civil functions	645.5	631 3	14.2	...
General government	101.9	102.3	....	0.4
Internal security	75.3	74.0	1.3	...
Development and regulation	124.4	109.0	15.4	...
Public domain, works, and industries	274.4	274.3	.1	...
Local governments and Indians	53.3	56.2	....	2.9
Foreign relations	16.2	15.5	.7	...
Military functions	1,200.3	1,179.0	21.3	...
Public debt	1,925.4	1,710.1	215.3	...
Interest	787.0	831.9	....	44.9
Premium	7.1	5.3	1.8	...
Statutory retirements	519.6	487.4	32.2	...
Other retirements	611.8	385.7	226.1	...
Loans	1.0	[a]—0.1	1.1	...

[a] Excess of credits, deduct.

trol, under which are included outlays for education and research, and the regulation or promotion of special groups of industries. The actual routine expenditures of the general government were lower by about $400,000. Analysis of the budget showed, as in former years, the preponderance of outlays for war past and present. Only about one-sixth of the entire outlay was used for ordinary civil functions of all varieties combined. One half of the entire outlay went for the service of the public debt, two-fifths of this half being used for interest and premium payments and three-fifths for debt retirement. Current military expenditures and pensions required about one-third of the entire outlay In the fiscal year 1927, expenditures for interest on the public debt exceeded by over $140,000,000 the aggregate amount of ordinary civil expenditures and exceeded the amount of all retirements of the public debt by nearly $70,000,000.

THE SURPLUS Excess of receipts over expenditures left the government for the fiscal year with the largest surplus it had enjoyed at any time since the war, the total being about $636,000,000. The following table furnishes the details of surplus development during the past few years.

ORDINARY RECEIPTS AND EXPENDITURES CHARGEABLE AGAINST ORDINARY RECEIPTS, 1920 TO 1927
[*On basis of daily Treasury statements (unrevised)*]

Fiscal year	*Total ordinary receipts*	*Expenditures chargeable against ordinary receipts*	*Surplus*
1920. .	$6,694,565,388	$6,482,090,191	$212,475,197
1921. .	5,624,932,960	5,538,209,189	86,723,771
1922...	4,109,104,150	3,795,302,499	313,801,651
1923...	4,007,135,480	3,697,478,020	309,657,460
1924...	4,012,044,701	3,506,677,715	505,366,986
1925. .	3,780,148,684	3,529,643,446	250,505,238
1926...	3,962,755,690	3,584,987,873	377,767,817
1927. .	4,129,394,441	3,493,584,519	635,809,922

This surplus was, however, viewed by the Treasury Department as an "anomaly," inasmuch as about two-thirds of it resulted from sales of so-called capital assets (obligations of railroad companies taken by the government during the war, etc.) and from back collections of taxation, in excess of tax refunds. The result was to give a large "book" surplus, which probably did not represent very accurately the actual income position of the Department for the year. Nevertheless, the situation thus exhibited was such as to inspire confidence in public finance and to strengthen the credit of the government very materially.

PUBLIC DEBT SITUATION. While the French government continued to defer ratification of the debt-funding treaty which had been concluded during the preceding year, it nevertheless undertook to make regular payments under the treaty on the same basis as if the document had been signed. Accordingly, the government was in position to credit the amortization payments under the entire group of debt liquidation arrangements that had been concluded by the World War Debt Funding Commission. During the fiscal year 1927, the entire debt was reduced from $19,643,183,079 to $18,510,174,266, an aggregate reduction of $1,133,008,813. This reduction was brought about through normal retirements of $519,563,844, which sum was chargeable against ordinary receipts in accordance with the established debt payment programme, and $613,444,968 of surplus which was transferred to debt settlement account from ordinary balances. The total amount received from foreign governments under debt settlements (included in the foregoing reductions) was approximately $160,000,000 The table on p. 675 shows the debt situation in condensed form.

TREASURY FINANCE. The outstanding event of the year in Treasury finance was the maturing of the Second Liberty Loan on November 15. There were outstanding about $3,083,671,700 Second Liberty Loan 4¼ per cent Bonds and $20,848,350 Second Liberty Loan 4 per cent Bonds. As at the beginning of the year, conditions seemed to warrant the belief that the government could sell securities at a 3½ per cent rate. An offer of refunding notes was made on this basis and a considerable quantity of the bonds were retired prior to July 1 Another offer of similar kind was made during the early autumn with the result that on October 31 all of the loan had been refunded with the exception of about $757,545,500. The bulk of this latter amount was ultimately taken up through the issuance of Treasury certificates, a small amount of course remaining unredeemed, as is usually the case with all large issues of bonds which are in the hands of many small holders. During the year, five issues of interest-bearing securities were offered to the public for cash subscription for the purpose of financing maturing certificates and bonds, and all were successfully floated at rates which, in some cases, ranged as low as 3⅛ per cent for short-term issues. Unusually favorable conditions for the sale of public securities were attributable to the facts that there had been an exceptionably easy money market during the early part of the year and that this money market was maintained on an unusually favorable basis by the adoption of a very low rate discount policy on the part of the Federal Reserve banks. The combined effect of all these natural and artificial causes thus operating was to bring about a situation in which Treasury obligations could be sold on a more economical footing, so far as the government was concerned, than at any time since the war.

LEGISLATION RECOMMENDED. Further reductions of the income tax had been earnestly demanded by the business community ever since the adoption of the tax revision law of 1926 which had proven in a good many ways disappointing. Comparatively early in 1927, Federal authorities, impressed by the large size of the surplus then in sight, had begun to foreshadow an income tax reduction law and this was proposed to Congress, after survey and modification by the Ways and Means Committee, at the opening of the session in December, 1927. The act was promptly passed in the House. In accordance with recommendations of the Treasury Department, the proposed measure provided for a reduction of the corporation tax, certain readjustments in the personal income tax schedule, an abatement of miscellaneous taxes (the so-called "nuisance taxes") and a number of other modifications. Contrary to the recommendations of the Secretary of the Treasury, the proposed measure did not provide for the repeal of the estate tax, while it did enlarge the proposed repeals or modifications of the "nuisance taxes" (taxes on admissions, dues, etc.), the total reduction thus provided amounting in the aggre-

PRELIMINARY STATEMENT OF THE PUBLIC DEBT OUTSTANDING OCTOBER 31, 1927, BY ISSUES
[*On basis of daily Treasury statements (unrevised)*]

Bonds (pre-war)		$767,271,910 00
First Liberty loan of 1932–1947	1,939,156,850 00	
Second Liberty loan of 1927–1942	757,502,400.00	
Third Liberty loan of 1928	2,187,355,700 00	
Fourth Liberty loan of 1933–1938	6,257,202,900.00	
		11,141,217,850.00
Treasury bonds of 1947–1952	762,320,300 00	
Treasury bonds of 1944–1954	1,042,401,500 00	
Treasury bonds of 1946–1956	491,212,100 00	
Treasury bonds of 1943–1947	494,354,750 00	
		2,790,788,650 00
Total bonds		14,699,278,410 00
Treasury notes		2,594,315,600 00
Treasury certificates		561,532,500 00
Treasury savings certificates [a]		257,413,793 90
Total interest-bearing debt		18,112,540,303 90
Matured debt on which interest has ceased		14,894,140.26
Debt bearing no interest:		
United States notes	346,681,016 00	
Less gold reserve	155,420,720 98	
	191,260,295.02	
Deposits for retirement of national-bank and Federal reserve bank notes	44,162,172 00	
Old demand notes and fractional currency	2,046,040 95	
Thrift and Treasury savings stamps, unclassified sales, etc.	3,588,659 71	
		241,057,167 68
Total gross debt		18,368,491,611.84

[a] Net redemption value of certificates outstanding

gate to about $280,000,000 instead of $225,000,000 which had been named by the Secretary of the Treasury as a maximum. Among other important changes the new legislation called for certain alterations in the administrative sections of the law and particularly for the provision of a large expert staff, capable of more promptly disposing of tax appeals and so enabling the Treasury Department to bring its work up to the current condition.

Budget Estimates for Coming Year. Estimates of outlay for the coming year were, as usual, prepared by the Treasury, together with the forecast of the probable situation in the fiscal year 1929. As thus submitted to Congress, the expectation for 1928–29 may be briefly summarized as follows:

The fact that a surplus of $455,000,000 was thus foreshadowed by the Treasury for the fiscal year ending June 30, 1928, led the United States Chamber of Commerce to make strong recommendation to the Treasury that the curtailment of income taxation to be made in the pending reform measure should be allowed to run up to an aggregate of $400,000,000—a recommendation sharply rejected both by the Secretary of the Treasury and the President on account of their belief that the items going to make up the surplus would materially fall off during the fiscal year of 1929—a situation which, according to them, would have necessitated almost immediate action reinstating the older income tax requirements. This would, in their view, have been tantamount to introducing an instability

SUMMARY OF RECEIPTS AND EXPENDITURES ON THE BASIS OF DAILY TREASURY STATEMENTS

	Actual, fiscal year 1927	*Estimated, fiscal year 1928*	*Estimated, fiscal year 1929*
Net balance in the general fund at the beginning of fiscal year	$210,002,027	$234,057,410	$210,002,027
Receipts:			
Ordinary	4,129,394,441	4,075,598,091	3,809,497,314
Public debt	2,756,410,766 [a]	3,238,115,237	1,319,176,323
Total	7,095,807,234	7,547,770,738	5,338,675,664
Expenditures:			
Ordinary	2,974,029,675	3,085,129,211	3,015,333,637
Public debt chargeable against ordinary receipts	519,554,845	536,185,074	541,623,394
Other public debt	3,368,165,304 [a]	3,716,454,426	1,571,716,606
Net balance in the general fund at close of fiscal year	234,057,410	210,002,027	210,002,027
Total	7,095,807,234	7,547,770,738	5,338,675,664
POSTAL SERVICE			
Postal receipts	683,121,989	710,500,000	753,000,000
Postal expenditures	710,385,180	740,870,400	768,270,042
Deficiency in postal receipts [b]	27,263,191	30,370,400	15,270,042

[a] Other public debt expenditures and public debt receipts, as shown in this statement, are exclusive of $2,428,673,500 Treasury certificates issued and retired within the same fiscal year.

[b] The postal deficiency for 1927 and the estimated postal deficiencies for 1928 and 1929 are included in the ordinary expenditures shown above.

into legislation and taxation which would have been highly undesirable.

CASH POSITION. The cash position of the Treasury at the close of the fiscal year 1927 was as follows:

CONDITION OF THE UNITED STATES TREASURY, 1927

General fund:			
In Treasury offices—			
Gold		$158,704,029.52	
Standard silver dollars		5,179,333.00	
United States notes		3,230,183.00	
Federal reserve notes		210,525.00	
Federal reserve bank notes		192,906.00	
National-bank notes		84,154.50	
Subsidiary silver coin		5,246,728.97	
Minor coin		2,885,629.11	
Silver bullion (at cost)		6,921,159.42	
Unclassified (unassorted currency, etc.)		1,894,701.35	
			$184,549,349.87
In Federal reserve banks—			
To credit of Treasurer of the United States		30,656,042.52	
In transit		6,330,858.10	
			36,986,900.62
In special depositaries—			
Account of sales of Treasury bonds and certificates of indebtedness			198,606,818.09
In national-bank depositaries—			
To credit of Treasurer of the United States		7,069,715.69	
To credit of other Government officers		19,760,536.44	
In transit		2,353,242.28	
			29,183,494.41
In treasury of Philippine Islands—			
To credit of Treasurer of the United States		486,387.66	
In transit		114.90	
			486,502.56
In foreign depositaries—			
To credit of Treasurer of the United States		93,159.45	
To credit of other Government officers		418,447.98	
In transit		495.00	
			512,102.43
			450,325,167.98
Deduct current liabilities—			
Federal reserve note 5 per cent fund (gold)	$139,873,094.78		
Less notes in process of redemption	749,035.00		
		139,124,059.78	
National-bank note 5 per cent fund	26,299,861.14		
Less notes in process of redemption	18,944,262.00		
		7,355,599.14	
Treasurer's checks outstanding		4,197,638.06	
Post Office Department balance		8,839,903.94	
Board of trustees, Postal Savings System balance		7,152,609.32	
Balance to credit of postmasters, clerks of courts, disbursing officers, etc.		48,695,998.55	
Retirement of additional circulating notes, act of May 30, 1908		2,830.00	
Uncollected items, exchanges, etc.		2,358,408.71	
			217,727,047.50
Balance in the Treasury June 30, 1927, according to statement of the public debt of the United States			232,598,120.48

PUBLIC LANDS. See LANDS, PUBLIC.

PUBLIC SCHOOLS. See EDUCATION IN THE UNITED STATES.

PUBLISHING. See LITERATURE, ENGLISH AND AMERICAN.

PUGILISM. See BOXING.

PULP, PULPWOOD INDUSTRY. See FORESTRY; PAPER.

PUMPS. See WATER-WORKS AND PURIFICATION.

QUAKERS. See FRIENDS, RELIGIOUS SOCIETY OF.

QUANTUM MECHANICS. See PHYSICS.

QUARANTINES, PLANT. See HORTICULTURE.

QUEBEC, kwē-bĕk′. The largest province in Canada, and one of the four original provinces in the present Dominion of Canada; bounded on the west by Hudson Bay and Ontario, on the north by Hudson Strait, on the east by Labrador, and on the south by New Brunswick, the United States, and southern Ontario. Area, 703,653 square miles; population, according to the census of 1921, 2,361,199, of whom 1,038,128 were rural, 357,295 of British origin, and 1,889,090 of French origin. Capital, Quebec. The chief cities with their populations, according to municipal statistics, are as follows: Montreal, 836,304; Quebec, 116,488; Hull, 35,521; Verdun, 32,804; Three Rivers, 26,000; and Sherbrooke, 24,179.

The provisional figures for the acreage and yield of the most important field crops for the year 1926 were as follows: Wheat, 64,000 acres, 1,056,000 bushels; oats, 1,856,000 acres, 56,051,000 bushels; barley, 124,000 acres, 3,013,000 bushels; rye, 12,500 acres, 205,000 bushels; flax, 2500 acres, 22,000 bushels; mixed grains, 115,000 acres, 2,956,000 bushels; other grains, 237,000 acres, 4,923,000 bushels; potatoes, 159,000 acres, 13,769,000 cwt.; roots, 34,000 acres, 5,940,000 cwt.; hay and clover, 4,153,000 acres, 4,610,000 tons; fodder corn, 88,000 acres, 667,000 tons.

Quebec is the chief Canadian province in the production of pulpwood, having more than half of the Canadian production. The value of mineral production in 1925 was $23,824,912. The total imports for consumption in 1924–25 amounted to $222,536,180; total exports, $355,115,463. The revenue for 1927 was $30,924,997.01; expenditure, $29,078,702.89. The public debt, as of June 30, 1927, was $58,812,951.45. Quebec has 5248.22 miles of railway, including 397 miles of electric tramway. At the head of the government is a lieutenant-governor appointed by the governor-general of Canada, who acts through a responsible ministry; legislative power is vested in a bicameral body, a council of 24 members appointed for life, and a legislative assembly of 85 members elected for five years. Quebec is the only province in Canada in which women are not enfranchised or eligible for election to the legislature. Lieutenant Governor in 1927. N. Pérodeau; Premier, Attorney-General, and Minister of Municipal Affairs, L. A. Taschereau; Lands and Forests, H. Mercier; Treasurer, J. Nicol; Secretary, A. David; Agriculture, J. E. Caron; Colonization, Mines and Fisheries, J. E. Perrault; Public Works and Labor, A. Galipeault; Roads, J. L. Perron; Ministers without Portfolio, E. Moreau, L. Lapierre, J. H. Dillon.

QUEENS COLLEGE. A college for women at Charlotte, N. C.; founded in 1771; non-sectarian in purpose, but under the direction of the Presbyterian Church. The enrollment for the autumn of 1927 was 360. There were thirty-two members in the faculty, of whom a vice president and an assistant in modern languages were added in 1927. The library contained 8663 volumes. A new building, costing $85,000, combining refectory and dormitory space, was added in the summer of 1927. The income for the year was $130,000. President, William H. Frazer, D.D.

QUEENSLAND. A state in the Commonwealth of Australia situated north of New South Wales; the second largest of the constituent Australian states. Area, estimated at 670,500 square miles; population, according to the census of 1921, 755,972; estimated, July 1, 1927, 885,741. The movement of population in 1925 was: Births, 20,282; deaths, 7545; marriages, 6471. The immigrants in the same year numbered 93,979 and the emigrants, 82,274. Capital, Brisbane, with a population in 1926 (10-mile radius), of 274,260 (census).

During 1925 there were 1707 state schools (including 13 high schools and 156 provisional schools) with 4227 teachers and an average daily attendance of 106,994. The total value of all crops in 1926 was £12,181,917 as compared with £12,526,609 in 1925. The principal crops are green fodder, sugar cane, corn, wheat, cotton, hay, and bananas. The total value of the mineral production in 1925 was £2,012,677. Since the discovery of the gold fields in 1858 the value of the gold output, to the end of 1925, was £85,190,579. Coal is also an important mineral product (1,177,173 tons produced in 1925), and among the other mineral products are copper, tin, wolfram, lead, cobalt, etc. In 1925–26 the imports amounted to £13,756,654 and the exports to £26,384,916. The registered shipping in 1925 consisted of 145 sailing vessels of 2300 net tons and 86 steamers of 24,425 net tons. On June 30, 1926, 6240 miles of railways were open, of which 5964 were being worked.

Executive power is vested in a governor, who acts through a responsible ministry; and legislative power in a single chamber or legislative assembly of 72 members elected for three years (the legislative council was abolished in 1922). Governor in 1927, Sir T. H. J. C. Goodwin (appointed February, 1927); Lieutenant-Governor, W. Lennon; Prime Minister, W. McCormack.

During the first week in September the Labor Government of Queensland and the Railway Union had a short but severe struggle. The railway workers went on a strike and refused to handle the products of a sugar mill which was put on the "black list" because of trouble between the owners and the employees. The government which owned the railway met the situation by discharging all employees because of the impossibility of operating the road. At the same time it offered to reinstate all men who would promise to abide by the regulations of the railroad. The government offered temporary but practically futile relief by substituting motor transportation in the affected area, but the strike virtually tied up most of the business of the State. For a time there was a fear that a sympathetic strike might be called in the other states of the Commonwealth. The Labor government remained firm, however, and appeared to have the support of the other states as well as of the Commonwealth Government. The result was the complete breakdown of the strike on September 10, and the signing of the Government's agreement by the railway workers.

QUICKSILVER. In 1927 the world production of quicksilver was estimated at 115,000 flasks of 75 pounds each, or in excess of the output for both 1926 and 1925, when 104,000 flasks was the estimated world's production. Also, 1927 witnessed the highest prices ever recorded for the full period of the year, rising in the United States from about $100 per flask at the beginning of the year to $130 towards its end. Accordingly, the United States production increased from 20 to 25 per cent over the 7642 flasks which were reported in 1926. Outside of the United States the greatest increase was in Spain, where the Almaden Mines had a production of 52,500 flasks for the season closed on July 1, 1927, which was greater than any year previously reported. In Italy the production in the same period was said to be about the same as that of Spain, the Monte Amiata district increasing its production while the old Idria Mine in the Trentino, formerly Austrian territory, suffered a decline. In the United States the New Idria Mine in California was the largest producer, with the Chisos Mine in Brewster County, Texas, said to be second.

RABIES. An annotation in *The Lancet* (London) for July 16 summed up the status of this malady by stating that outside of Great Britain, Switzerland, and the Scandinavian countries it was still a scourge. The Pasteur treatment of active immunization did not reach a large share of the world's population, and since it must be given to the bitten at once it is not possible to be sure as to the proportion of bites which would have given rise to the disease. Statistics showed that a larger number of people were constantly seeking to benefit by the treatment. According to a recent computation by some Austrian physicians, the expectancy of death in the untreated bitten, the animal being shown to have been rabid, is 10 per cent, while in the bitten who are treated the expectancy of death is less than 1 per cent, including those who reach the institutions at a relatively late period. There had been no essential change in the mode of treatment since 1885, but there was a notable lack of standardization among the various institutes and the emulsion used in inoculation was prepared in a variety of ways. Recently the Phillips method of preparing the emulsion appeared to be responsible for an unusual record—but a single death from rabies in 1540 bitten treated patients. This figure was far below the average obtained in the numerous institutes. In theory this method should be tested everywhere, but, judging from the past, each institute will cling to its own procedure.

RACIAL STUDIES. See ANTHROPOLOGY.

RACING. Thoroughbred racing in 1927 was far from epochal in the history of the sport, but nevertheless there was a marked increase in interest attached to the various meetings held throughout the United States, England and France. Harry Payne Whitney, with estimated earnings of $500,000, was once more the leading winning owner in the United States. His stable captured the Preakness with Bostonian and the Kentucky Derby with Whiskery. Brown Bud and Osmand also helped swell the Whitney winnings. Mrs. Payne Whitney proved the greatest money winner on the New York courses, her Greentree Stable netting her nearly $175,000 in purses. H. F. Sinclair ranked second with about $160,000. Mrs. John D. Hertz of Chicago, owner of Anita Peabody and Reigh Count, was another owner to reap a rich harvest in stakes. Samuel C. Hildreth topped the trainers by turning out 72 winners, Max Hirsch being second with 38.

Honors among the horses in the older division were shared by Crusader which began the season well, only to be forced out of competition early by injuries, Peanuts, Little Mars and Chance Play. Black Maria proved the best of her sex with Happy Argo leading the sprinting division. Display was exhibiting remarkable stamina as the season drew to its close.

Nimba shone among the three-year-olds with her victories in the American Oaks, the Alabama and the Lawrence Realization. Among the juveniles Reigh Count and his stablemate, Anita Peabody, rated best. Other notable horses in this division were Brooms and Dice, the latter meeting an untimely death.

Earl Sande, one of the most prominent American jockeys, was found guilty of fouling the fleet Reigh Count in the Pimlico Futurity and suspended indefinitely by the Maryland State Racing Commission. He was granted a special hearing and his employer, Joseph E. Widener, made a plea for leniency, but to no avail.

The winners of the principal turf events in the United States were as follows: Futurity, Anita Peabody; Preakness, Bostonian; Kentucky Derby, Whiskery; Hopeful, Brooms; Belmont Stakes, Chance Shot; Withers, Chance Shot; Saratoga Special, Ariel; Travers, Brown Bud; Suburban Handicap, Crusader; Metropolitan Handicap, Black Maria; Saratoga Cup, Chance Play; Brooklyn Handicap, Peanuts; Latonia Derby, Handy Mandy (new record, 2:28 3-5).

Call Boy, owned by Frank Curzon, won the English Derby in 2:34 2-5, record time for the new course. The Grand Prix de Paris went to Fiterari, owned by M. P. Moulings. It was estimated that $1,500,000,000 was wagered on horse racing in Great Britain during 1927.

HARNESS RACING. This sport flourished in 1927, the purse money hung up on the Grand Circuit alone amounting to $500,000. Guy McKinney, four-year-old trotting stallion, was the leading performer of the year, his 1:58 3-4 for the mile at Phoenix, Ariz., on November 24, setting a new world's record. The filly Kashmir was the best of the three-year-old trotters while [illegible] carried off the laurels among the two-year-olds. Iosola's Worthy (2:04 3-4), winner of the $[illegible] Hambletonian Stake, was the greatest money winner of the year. [illegible]

RACQUETS. New champions were the order in racquets, squash racquets, squash tennis and court tennis during 1927. Clarence Pell of New York regained the racquets title from Stanley G. Mortimer of Tuxedo while in squash racquets Myles Baker of the Harvard Club succeeded W. Palmer Dixon, former Harvard club captain, as champion. In squash tennis Rowland B. Haines of the Columbia University Club carried off the laurels, Fillmore Van S. Hyde of the Harvard Club not defending his title. G. Suydam Cutting of New York who succeeded to the court tennis championship in 1926 when Jay Gould retired from singles competition after twenty years, failed to defend his title which went to George Huban, a young Englishman, living in Chicago. Gould with William C. Wright, Jr., of Philadelphia again captured the court tennis doubles championship while Pell and Mortimer regained the racquets doubles title from Robert Gardner and Howard Linn of Chicago.

The squash racquets season was enlivened somewhat by the visit paid to Canada by an English team headed by Victor Acazalet. The invaders captured the Lapham Cup in a series of matches played at Toronto, scoring 17½ points. The United States team finished second with 16½ and Canada third with 11. Jock Soutar of Philadelphia successfully defended his world's professional court tennis championship against Walter Kinsella and his racquets title against William Standing. Frank Ward of the City A. C., New York, retained his world's open squash title.

RADCLIFFE COLLEGE. A non-sectarian college for women at Cambridge, Mass.; founded in 1879. The enrollment for the autumn of 1927 was 1068, distributed as follows: regular students, 726; graduates, 299; special students, 43. Instruction was given to the students of the College by 208 teachers from Harvard University. The productive funds amounted to $4,433,699, and the income for college purposes to $449,000. President, Ada Louise Comstock, A.M., Litt.D., L.H.D., LL.D.

RADIO. An innovation in broadcasting was inaugurated by the General Electric Co. at its station WGY, near Schenectady, N. Y., in the employment of power of 100 kilowatts. This was the first time so much power had been installed for the purpose of commercial broadcasting. A feature of this development was the new transmitter, which was remarkable for the fact that it occupied less than one-half the space taken up by the 50-kw. transmitter previously used. It had a radio power amplifier whose frequency was controlled by a quartz crystal and a modulator bank, with its modulation reactors and speech input equipment. There were two 100-kw. tubes in the amplifier unit and three in the modulator unit. These tubes, or radiotrons, had copper anodes almost 3 ft. long and 3¼ inches in diameter. Filament and grid leads were brought out through the top of a glass cylinder about 19 inches long and 5 inches in diameter. The radiotron was 50 inches long and required 210 amperes at 33 volts for excitation of the filament. Two radiotrons were ordinarily used in parallel. The antenna was vertical and consisted of a cage 2 ft. in diameter and [illegible] ft. [illegible]. Water circulation was necessary for [illegible] of these large tubes and [illegible]

derwood & Underwood

THE FIRST FEDERAL RADIO COMMISSION

LEFT TO RIGHT: COMMISSIONERS HENRY A. BELLOWS, EUGENE O. SYKES, ADMIRAL W. H. G. BULLARD, U.S.N., RET.

for the transmitter, 60 gallons per minute were required.

For broadcasting at this power, a special license was issued to the General Electric Co., by the Federal Radio Commission. Results of the operation of this station demonstrated that this high power was very effective in overcoming disturbances at considerable distances from the transmitter and the latter covered approximately twice the area reached by the 30-kw. set and gave equally satisfactory reception over the increased range.

The unsatisfactory and confusing situation in regard to broadcasting that existed in 1926 (See *Radio Broadcasting*, YEAR BOOK, 1926) was put into a far more stable condition by the enactment of a law by Congress that created a Federal Radio Commission of five members, effective Feb. 23, 1927. This commission was vested with authority to license broadcasting stations for one year; to determine to whom licenses shall be granted; and to fix wave lengths, power and hours of operation. The general powers of the commission were to be transferred to the Secretary of Commerce from and after one year after its first meeting, which was held Mar. 15, 1927; the Commission, however, was to retain authority over certain controversial matters that might be referred to it. Effective Feb. 26, 1927, the radio service was separated from the Bureau of Navigation, owing to the vast extension of radio in such great variety of directions as broadcasting, photographic transmission, etc.

The International Radio Telegraph Conference held in Washington, D. C., in October, 1927, was one of the outstanding events of the year, bringing together, as it did, the representatives of 80 different governments, who worked together for almost two months in harmony and were able to reach satisfactory conclusions upon highly technical matters. An important feature of the conference was the recognition of amateurs as radio workers deserving of official recognition in the development of this new art.

It was estimated by the Department of Commerce that 18,000,000 radio receiving sets were in use throughout the world providing reception facilities for about 90,000,000 people; but as this number represented only a small proportion of populations existing in zones of constant reception, it was considered that many millions more radio receiving sets could be sold in different parts of the world without reaching the "saturation point."

There was an increasing employment of radio for controlling various apparatus at distant points. In the City of Glens Falls, N. Y., an ingenious system of control was developed by engineers of the General Electric Co. for switching on and off the street lights, which were operated by radio impulse directed by carrier current over wires to the switch-operating mechanism.

An interesting development that gave promise of wide application to long freight trains was given a series of tests by the General Electric Co. engineers on the New York Central R. R. by which it was possible to operate a radio telephone between a caboose and the locomotive cab. The frequency employed was between 2300 and 2750 kilocycles and it was found necessary to use a power of 50 watts delivered to the antenna.

Photo-radio transmission of pictures continued to be an important feature of news service and the quality and distinctness of the illustrations transmitted showed marked improvement over the earlier work of this kind. An important development was the continuance of research work in what was styled "television," or the simultaneous transmission of a picture and the voice of the speaker in the picture. Successful experiments were reported.

RADIO-ACTIVITY. See GEOLOGY.

RADIO AND AGRICULTURE. See AGRICULTURE, U. S. DEPARTMENT OF.

RADIO FOG SIGNALS. See LIGHTHOUSES.

RADIO TELEGRAPHY AND TELEPHONY. The outstanding event of the year was the inauguration, on Jan. 27, 1927, of trans-Atlantic telephony between New York and London on a commercial basis. The success and reliability of this service soon led to its extension to include all stations of the Bell System, and somewhat later, all large centres of telephone traffic in Great Britain. Toward the close of the year, it was possible to link up many of the large cities of Europe in such manner as to take advantage of the radio telephone with North America. Owing to difference in time between London and New York, it was not considered practicable to give a 24-hour service; furthermore, as was to be expected, communication was not invariably satisfactory at all hours; nevertheless, it was reported that an encouraging amount of traffic was obtained and that the use of this new means of rapid communication was on the increase.

By reference to the YEAR BOOK for 1926, it will be seen that on each side of the Atlantic there were separate sending and receiving stations, the former being connected with any wire telephone circuit desired, and the latter delivering its amplified impulses to similar land lines. The apparatus was so arranged that, when no one was speaking, the transmitting voice paths were blocked both at New York and London, but the receiving paths were open. When, for instance, a person in New York spoke, his voice currents acted so as to block off his receiving path and allow his voice to go out. When he had finished talking, his apparatus was automatically restored to receiving condition and the person in London, by means of similar apparatus, was then able to speak.

It was expected that early in 1928, the telephonic apparatus being installed would enable radio-telephonic communication to be established between Cuba and Belgium; thus affording another means of speech transmission between America and Europe. The further development of trunk lines between the large cities of the latter continent was continued and was attracting considerable patronage from the public.

RADIUM. Through ownership of deposits of radium and uranium ores in Belgian Congo the Union Minière du Haut Katanga continued in control of the world radium market, and it was not considered profitable to work the uranium deposits in southwest Colorado and southeast Utah, except for limited sales. The Belgian company referred to was producing for markets, annually, through its radium plant in Belgium, operated by a subsidiary, about 20 grams of radium a year, retailing at about $70,000 a gram. Czechoslovakia did not produce any radium in 1926, as the treating plant was shut down for enlargement and improvements but mining was continued and 22 short tons of pitchblende, carrying 50 per cent of U_3O_8 was produced. The plant when completed was expected to have a yearly capacity of six grams and the output for 1927 was estimated at 3 grams. In Portugal, radium mines and concentrating works from which a certain amount of radium was produced were operating in 1927. The American production in 1927, as in 1926, was sold to the companies making radioactive drinking water, salves, complexion preparations, and pads for rheumatic and other ailments. No radium was known to have been isolated from ore mined or shipped during the year 1926 but one company produced a small amount in finishing work at its reduction plant. The yearly purchases of radium were not more than 25 grams and the demand seemed to be restricted. A further consideration was the fact that when more than a few grams of radium were stored in any one place, there was the danger that persons in the vicinity might be injured by escaping gamma rays. The U. S. Bureau of Mines estimated the world's total production at 560 grams, or approximately 1.1 avoirdupois pounds, of which the United States had furnished 250 grams; Belgian Congo, 180 grams; Czechoslovakia, 42 grams; Portugal, 15 grams; Madagascar, 8 grams; Russia (Ferghana), 6 grams; Cornwall, 4 grams; and South Australia, 1 gram. In 1926 the United States imported radium salts and radio-active substances valued at $549,459; in 1927 imports were valued at $393,662.

RAILROAD LABOR ACT. See LABOR ARBITRATION AND CONCILIATION.

RAILWAY ACCIDENTS. During 1926 the number of persons killed in railway accidents in the United States was 7090, as compared with 6766 in 1925, while the number injured was 130,235, as compared with 137,435 in 1925, according to the report contained in *Accident Bulletin No. 95*, issued by the Interstate Commerce Commission, in 1927. Of the total number killed in train accidents, 360, and of those injured, 3916, there were 190 railroad employees killed while on duty and 1589 injured. The total number of accidents, from collision, derailment or other causes, was 21,077, and these resulted in damage to property totaling $22,185,306. It was reported that of the 234,280 highway crossings on the railroads of the United States, Dec. 31, 1926, 206,433 were unprotected.

RAILWAY ACCIDENTS BY GROUPS

Group of accidents	*Year ended Dec. 31, 1926*		
	Number of accidents	*Number of casualties*	
		Killed	*Injured*
Train accidents	21,077	360	3,916
Train-service accidents	48,504	6,329	45,733
Non-train accidents ..	([a])	401	80,586
Total	([a])	7,090	130,235

Group of accidents	*Year ended Dec. 31, 1925*		
	Number of accidents	*Number of casualties*	
		Killed	*Injured*
Train accidents	20,785	418	3,912
Train-service accidents	46,754	5,946	44,081
Non-train accidents ..	([a])	402	89,442
Total	([a])	6,766	137,435

[a] No data available.

The annual report of the chief inspector of the Bureau of Locomotive Inspection of the Interstate Commerce Commission for the fiscal year ending June 30, 1927, shows that the number of accidents in connection with locomotives had decreased by 14.9 per cent from the previous year. The number of injuries had decreased by 21.6 per cent but there was an increase of 27.3 per cent in the number of persons killed. The figures for 1923 showed that 72 persons were killed and 1560 were injured as a result of the failure of some part of the locomotive, while in 1927 the corresponding figures were: killed 28, injured 57.

SAFETY ON BRITISH RAILROADS. In 1927 there were 26 passengers killed in train accidents on British railroads, the largest total since 1906. These fatalities resulted from three accidents, two collisions and one derailment taking place.

The *Railway Gazette* of London, referring to the safety record and making comparison of the years for the total number of collisions and derailments which proved fatal to passengers, stated that there had been a total of 84 in the present century, or a fraction over three each year. In 1926 there were 13 killed in train accidents, but for the 10 years prior to 1926 the total number of passengers killed in train accidents on British railroads was 78, or an average of less than eight yearly.

RAILWAYS. In the United States the Interstate Commerce Commission both in its orders, and in its attitude toward consolidation and toward valuation and the recapture clause, played a predominating part in the development of the railways in 1927. Of course the operation of the roads, which since Mar. 1, 1920, had been under private management, went on in an orderly development only indirectly affected by the policy of the Interstate Commerce Commission, but the whole broad question of the trend of economies in railway matters was governed by the attitude of the Interstate Commerce Commission.

In the Transportation Act of 1920 it was provided that the Interstate Commerce Commission having had made a physical valuation of the railways, the rate of return on the capital invested in the railways as a whole, or for sections of the country as a whole, was to be based on this valuation. This valuation was to be fixed by the Interstate Commerce Commission taking into consideration among other things the cost of reproduction of the railroads new, and Congress left to the discretion of the Commission the manner in which the valuation should be taken. The Commission took Jan. 1, 1917, as the date of valuation and, to get a present value, added to the valuation of that date the capital expenditures; that is, additions and betterments, under the Commission's technical accounting rules, which had been made since Jan. 1, 1917. Valuation hearings had been going on for a long time, and throughout this period the Commission had considered itself as the counsel for the people rather than a judicial and impartial judge. The result has been that from the minutest detail to the largest policy the Commission's valuation engineers have striven to make the "cost of reproduction" figure for each railroad as low as possible. On the other hand, the representatives of the owners of the railroads or the railroad managements have striven to give as high a valuation to their properties as possible.

One question covering a broad interpretation of the intent of the valuation act and involving a question comparable to that raised between Socialism and capitalistic government, was the question of what scale of prices for railroad materials should be adopted— a pre-war schedule or present prices, which in some cases were 100 per cent or more higher than the pre-war prices. The Interstate Commerce Commission in its tentative valuation of railway properties had used the prices of 1914 as a basis for the "cost of reproduction new" of a railway property.

A tentative valuation is a valuation made by the Commission and its engineers and served upon the railroad company with notice that if the railroad objects to anything in the method used or in the results arrived at, or in the facts presented, it shall present its argument to the Commission before a certain date and before the Commission passes upon the final figure to be used to determine the valuation. The Commission fixes a final value—for sake of illustration we will say $100,000,000—and in accordance with the Transportation Act the railroad company is permitted to retain annually for distribution to its security holders 6 per cent of this valuation, if it earns that much. That is, in the illustration $6,000,000, which must cover all bond interest and other interest, borrowed money and all dividends to stockholders. To take an extreme case, if pre-war prices gave a valuation of $100,000,000 and present prices would give a valuation of $200,000,000 the greatest amount of earnings which security holders of the railroads could retain would in the first instance be $6,000,000 and in the second instance $12,000,000, so that every one, including the Commission itself, recognizes the tremendous importance of the basis used by the Commission in making its valuation, assuming always that the Supreme Court upholds the so-called recapture clause of the Transportation Act.

The Interstate Commerce Commission and its legal department agreed with the railways upon making a comparatively simple case of valuation the test of this most important fundamental question. It therefore used the valuation of the St. Louis & O'Fallon, a short railroad of a few miles, earning considerably over 6 per cent on the tentative valuation, using 1914 prices as a basis in the test case. The Commission in its decision finding that the St. Louis & O'Fallon Railroad owed the government a comparatively large sum for excess earnings during the period Jan. 1, 1917, to Dec. 31, 1926, stated in its finding that, while the amount involved was in this case a few hundred thousand dollars, the principle used in making the valuation applied to all the railroads of the United States. In deciding this case therefore the sum taken from the railway security owner represented a great many million dollars and was of the utmost importance. Thus, using the O'Fallon case avowedly as a test case, the Commission found that the railroad company owed the government a sum which represented excess earnings above 6 per cent on a value where unit prices of materials were on the basis of 1914.

The New York stock market apparently almost entirely disregarded this decision. The stock of a road such as the Norfolk & Western or New York Central, which, if valued in accordance with the principles used by the Interstate Commerce Commission in the St. Louis & O'Fallon case, would owe the government hugė sums of money and would presumably be limited as to dividends in the future, sold at prices that could only be justified by present dividends, and prospects for an increase in dividends in the future dependent on the earning power of the property without the recapture of any part of the earnings by the government.

Notwithstanding the action of the Stock Exchange, or at least public opinion as expressed in Stock Exchange prices, bankers, in making advances to railroads either through a loan covered by a bond issue or the purchase of stock, had undoubtedly continually in mind the possible effect of the St. Louis & O'Fallon decision.

The Transportation Act as passed Feb. 28, 1920, and amended June 7, 1922, provides that the Commission "shall investigate and report the value of all property owned or used by every common carrier subject to the provisions of the Act."

The Transportation Act of 1920 provides that "if any carrier receives for any year a net railway operating income [which means income after the payment of operating expenses, taxes and rentals but before deducting interest on borrowed money] in excess of 6 per cent of the value of the railway property, one-half the excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining half shall, within the first four months following the close of the period for which such computation is made, be recoverable and paid to the Commission for the purpose of establishing and maintaining a general railroad contingent fund."

Consolidations. With the question of valuation and of earnings which may be retained dependent on the United States Supreme Court's interpretation of a number of things, including the authority of the Commission to collect excess income, its method of valuation and, more fundamental than all, the right of the Congress to pass a law authorizing the collection of excess earnings still in uncertainty, some private attempts were made to carry out in part the intention of the Transportation Act in providing for consolidation of railroads into a limited number of systems. The Transportation Act provides that such consolidation would be in accordance with the plans laid down by the Interstate Commerce Commission, but while a tentative plan was made by the Commission, after a report by the Commission's expert, Prof. W. Z. Ripley of Harvard University, the Commission refused to indicate even the outlines of a final plan and refused to sanction the consolidations even by stock purchase to give control of one road by another. The Kansas City Southern Railway Company asked the Interstate Commerce Commission to sanction the purchase of control, directly or indirectly, of the stock of the St. Louis-Southwestern Railway Company and the Missouri-Kansas-Texas Railway Company, but this sanction was denied by a majority of the Commission in a report which gave a long list of convincing reasons why the Commission should not give its sanction to the operation of the three roads under unified control and ended by denying such sanction. Thus, no progress was made toward the consolidation, either under orders of the Commission or under private initiative of the separate railroad companies, into a limited number of railway systems as contemplated by the Act of 1920.

The fact that prices of railroad securities as reflected on the New York Stock Exchange were still high as compared with the prices of foreign government securities and industrial corporation securities, does not change the fact that the Interstate Commerce Commission during the year 1927 showed a decided tendency, so far as it was upheld by the courts, to regulate railways in the interests of the general public rather than that of the owners of railroad securities, and in the interests of certain theories sometimes Socialistic, upheld by the Commissioners individually.

Financial Results. In the calendar year 1927 the total operating revenue of the railroads amounted to $6,225,000,000, which was less by $224,900,000 or 3.5 per cent, than total operating revenues in 1926. In part this decrease in earnings was offset by a decrease in expenses, but net railway operating income, from which interest on borrowed money and return on capital invested in railroad securities must be paid, amounted to approximately $1,115,000,000, or about $117,000,000, or 9.5 per cent less, than 1926. An analysis of this decrease in earnings shows that the receipts per ton mile in 1927 were 1.075 cents as against 1.081 cents in 1926 and the receipts per passenger mile were 2.90 cents in 1927 as against 2.9361 cents in 1926. There was very little change in the proportion of the various classes of commodities carried to total tonnage freight, the principal changes being that the tonnage of coal in 1927 made up 17.81 per cent only of total tonnage of freight as compared with 18.62 per cent in 1926, and the tonnage of merchandise in 1927 made up 37.52 per cent in 1927 as against 36.36 per cent of the total tonnage of freight in 1926. In other words there was a decrease in the proportion of freight carrying a low ton-mile rate and an increase in the proportion of freight carrying a high ton-mile rate, but, notwithstanding this, there was a decrease on the average in the receipts per ton-mile of freight.

In 1927 the report to the Interstate Commerce Commission showed that in September, 1927, the average net ton-miles per train hour was 9967, the highest for any month in the history of American railroads, and, comparing with 9865 ton-miles per train hour carried in August 1926, the highest previous average for any one month.

Another index of railroad efficiency is the number of miles made on an average by freight cars during the month. In 1927 the average for the month of October was 34.7 miles per day and in the same month in 1926 the number was 34.3, and the average in 1922 to 1926 inclusive for October was 30.9 miles per car per day.

New Construction. The total number of miles of first track built in 1927 was, according to the *Railway Age* compilation, 778.76 miles as against 1004.72 miles of new first track built in 1926. In Canada the new first track built in 1927 was 309.67 miles and 334.90 in 1926. The *Railway Age*, from which these figures are taken, has for a number of years kept a uniform compilation of new mileage built. While the figure of new mileage built for 1927 was much smaller than that for 1926, it was larger than the figure for any other year since 1917. The total number of second-track miles built in 1927 was 446.08 and in 1926, 472.53.

The total mileage of railroad abandoned and taken up in 1927 in the United States was 202.42 miles and the mileage of line abandoned but not taken up was 79.55 miles. In Canada 39.33 miles were abandoned and taken up and 15.64 miles were abandoned but not taken up.

New Railway Equipment Ordered and Built. Again according to the compilation made by the *Railway Age* the total number of locomotives ordered in 1927 was 734 as against 1301 in 1926. This was for domestic use only. Including the locomotives from American builders for use in Canada and for export to other countries, the total number was 846 in 1927 and 1542 in 1926. As contrasted with the number ordered, the number actually built, including the output of shops in Canada and locomotives built in railroad company shops, in 1927, was 1176 as against 1770 in 1926.

The number of freight cars ordered in 1927 was 74,785, which included the cars ordered in America for use in Canada and cars ordered for export. The comparable figure for 1926 was 70,495. For domestic use only the freight cars ordered in 1927 totaled 72,006 and in 1926, 67,029. There was built a total of 64,477 cars in American shops for both domestic and foreign use and in Canadian shops 2851. Thus, in 1927 the total built in the United States was 64,477 as against 91,633 in 1926, and in Canada 2851 as against 1645.

The number of passenger cars ordered in 1927 for domestic, Canadian and export use was 1803 as against 2162 ordered in 1926. Of those ordered in 1927, 1612 were for domestic use and in 1926, 1868 for domestic use. The total number of passenger cars built in 1927 was 1835 and in 1926, 2286. In Canada in 1927 the total built was 126 and in 1926, 285.

The Baltimore & Ohio Railroad Company ordered 3000 70-ton steel hopper cars, 1000 of which cost $2313 each and 2000 of which cost $2294 each. The Chicago & North Western also ordered some 70-ton steel hoppers for which it paid $2516 each. A large order for 40-ton steel underframe box cars was placed by the Pere Marquette and the price paid was $2201 per car. Another road, the Baltimore & Ohio, placed a large order for box cars with a capacity of 50 tons each. They were of steel and varied in price from $1856 to $1934. Passenger cars of course show a large variation in price, particularly because of the difference in interior decoration required by different conditions. For instance, the Chicago, Rock Island & Pacific placed an order for coaches which were to be 74½ feet long and cost $28,634. The Mobile & Ohio placed an order for coaches which were to be 69 feet long and cost from $25,575 to $26,100 each, while the Southern Pacific ordered coaches to be 80½ feet long and which varied in price from $27,866 to $33,171.

There was a wide variation in price of locomotives ordered in 1927 due to differences in type, weight, equipment, etc. Thus, the Erie ordered twenty-five locomotives weighing 143,000 lb. each and costing $100,200 each, while the same road ordered 30 switching locomotives weighing 230,210 lbs. each and costing $55,800 each.

The *Railway Age* commenting on the types of new locomotives being developed on American railroads, called attention to the use of four-wheel trailers for locomotives, and the tendency toward a more general use of this wheel arrangement on locomotives, which was marked in 1927. The *Railway Age* says "the primary object of the four-wheel trailer truck is to secure larger boiler capacity and better boiler proportion. A larger boiler capacity means more horse power and more horse power means the maintenance of existing schedules with heavier trains in passenger service, and the hauling of heavier trains or increases in speed, or combinations of both of these factors in the case of freight train service."

ELECTRIC TRACTION. The new electrification projects announced in 1927 included electrification of about 50 miles by the Reading Company on its lines in the Philadelphia district, the extension of the Pennsylvania Railroad's electrification of lines in the Philadelphia district, the electrification of the west side yards of the New York Central in New York City, the electrification of the Great Northern between Cascade Tunnel and Skykomish, Washington, and the completion of the Chicago, Milwaukee & St. Paul electrification of its entrance into Seattle, Washington. See RAILWAYS, ELECTRIC.

RECEIVERSHIPS. The only roads of any consequence which went into receivership in 1927 were the Central of Vermont with 493 miles of line and approximately $33,481,000 of funded debt and $3,000,000 of stock, and the Missouri & North Arkansas with 365 miles of line, $5,000,000 of funded debt and $3,000,000 of stock. The total mileage of railroads placed in the hands of receivers in 1927 was 924.

The Chicago, Milwaukee & St. Paul with 11,205 miles of line operated, of which over 10,000 were owned, went into the hands of receivers in March, 1925, and it was announced that the receivership would be short and the reorganization plans quickly carried out. The Interstate Commerce Commission carried on at intervals during 1927 an investigation of the circumstances surrounding the receivership of the Chicago, Milwaukee & St. Paul, and although the district court approved of the sale of the railroad property of the old Chicago, Milwaukee & St. Paul to the proposed new company, the Chicago, Milwaukee, St. Paul & Pacific, nevertheless the new company had not during 1927 taken over the operation of the railroad and it was still being operated by representatives of the courts.

DIVIDEND CHANGES. During the very prosperous year 1926 a number of roads were earning sufficient to increase the rate of dividend on their stocks and rumors of increases were widespread. During 1927 the New York Central, effective August 1, increased the annual rate on the stock—there is only one class—from 7 per cent annually to 8 per cent, and the Southern Railway, which began its initial dividends at the rate of 5 per cent on its common stock in 1924 and increased this rate, effective Feb. 1, 1926, to 7 per cent, announced that on Feb. 1, 1928, a quarterly dividend of 2 per cent would be paid on the common, which places this stock on an 8 per cent annual basis.

NEW RAILROAD SECURITIES ISSUED. The most important single issue of securities from the point of size, was the issue by the Baltimore & Ohio of $63,242,500 common stock, offered to holders of preferred and common stock to the extent of 30 per cent of their holdings at $107.50 per share, and the issue of $49,036,700 7 per cent cumulative preferred stock by the New York, New Haven & Hartford, offered at $100 per share to stockholders of record Aug. 29, 1927, on the basis of 1 to 4 and to the holders of convertible debenture bonds at the ratio of one share of new preferred to each $400 par value of common stock or convertible debentures held. The New York Central offered $38,325,000 new common stock to its stockholders as of record Aug. 10, 1927, at $100 per share, on the basis of 10 per cent of their holdings of stock. These issues of stock are mentioned before the issues of bonds sold to refund maturing bonds because of the great significance that railways had sufficiently good credit to sell their stock rather than to borrow money through the issue of bonds

Of the bond issues, an issue of $95,000,000 Missouri Pacific First and Refunding, Series F, 5 per cent bonds was made and offered to the public at par These bonds mature in 1977. The New York, New Haven & Hartford in addition to selling its preferred stock, sold $31,000,000, 4½ per cent bonds due 1967, offered to the public at 91¼, yielding 5 per cent to maturity. In addition to the bond and stock issues sold there was a considerable volume of equipment trust issues sold. The Interstate Commerce Commission announced that it would require competitive bidding for issues of equipment trust certificates, and at least in theory this system was used during 1927. Since, however, competitive bidding did not necessarily mean that the issue should be awarded to the bidder who offered the lowest price for money, that is, would pay the highest price for the certificates, it meant that at least during 1927 the Commission recognized that the best bid for equipment trust certificates as for other securities might be a slightly higher bid by bankers affiliated with the road than by other bankers who during a time of prosperity might bid a low price for equipment trusts, but could not be counted upon during a period of poor security markets to make any bid whatsoever for a road's securities when money was needed imperatively for refunding or for other purposes.

John H. Dunn, signal editor of the *Railway Age*, in an article commenting on signal construction in 1928 says:

> A new high record was established in 1927 for the installation of signaling facilities in the United States and Canada. Automatic signals were completed on 5127 miles of road, 142 interlocking plants were built and 2074 automatic highway crossing signals were installed, which, with remote control layouts, automatic interlockings and other apparatus, represented a volume of signaling equipment greater than that installed in 1926, which was the previous peak year of history.
>
> The outstanding development of the year was the placing in service of the first complete installation of the centralized dispatching system on the Ohio division of the New York Central, as described in the *Railway Age* of August 20 This installation represents the accomplishment of the idea of operating trains by signal indication without written train orders or operators at intermediate stations, all switches and signals being power-operated and under the control of the dispatcher at a central point. While much of this control equipment is a radical departure from former practice, the system is a natural outgrowth of the extension of power interlocking and signals controlled from towers or stations. No mechanical locking is provided between the levers in the machine on this dispatching system, the locking being accomplished by relays and circuits, an idea discussed with reference to interlocking plants, but accomplished first on this installation. The Central of Georgia also installed a unique system of train direction on 24 miles of single track during the year, on which train movements are directed by signal indication under the control of operators. The Pere Marquette has under construction a system of centralized dispatching on 20 miles of single track.
>
> The installation of automatic train control in compliance with the two orders of the Interstate Commerce Commission has been completed with the exception of a few details on four roads. The important development in this field during 1927 was the extensive installation of the new code system of continuous control. The

thought that the train control orders of the commission would reduce the volume of automatic signal construction decidedly has proved to be ill-founded, as is demonstrated by the large signaling programs of the past two years.

In 1927 the Interstate Commerce Commission reported that the total mileage of track which had not been protected heretofore by automatic block signals, but which during the year was given automatic block signal control, was 5127 miles. This compares with 4992 miles, the corresponding figure for 1926.

Besides the installation of block signals which is intended primarily to prevent collisions between trains on the same track, there was a large amount of work done on highway crossing protection. In 1927, 2135 automatic railway crossing signals were installed as compared with 1560 in 1926. As indicative of what the trend of thought among railway signal engineers has been, it is interesting to note that of the 2135 automatic highway crossing signals established in 1927 there were 733 of the wigwag type and 1412 of the flash light type. In cities, in many instances, the railroads have installed at street crossings the colored light signals in accordance with the system used at cross streets by the cities themselves. One other development has been a new type of crossing gate adaptable for electric operation with automatic control by track circuit, which was tested out during 1927 in Chicago.

In addition to the highway protection there were 142 interlocking plants installed, of which 31 were automatic interlocking, at railroad crossings, which make it as nearly as possible safe for one track to cross another railroad track.

Another development was the installation of desk levers so that a distance could be controlled from a tower by the signal operator. The levers involved in this installation in 1927 totaled 2480.

A device which was tried out in 1927 dealing both with economy in operation and with the safety of employees was a device for retarding cars in classification yards. This device permits the retarding of a car being switched by gravity from one track to another, by a mechanical device controlled in a signal tower of the yard. A large number of accidents to railroad employees is occasioned by a car running at too high a speed when being switched into a train. Too slow a speed makes for uneconomical switching of cars while too high a speed endangers the lives or safety of the men engaged in doing the switching. It is hoped that by the use of the new device for retarding cars switching will be speeded up as a whole while accidents due to careless switching will in large part be eliminated.

Prior to 1927 the Interstate Commerce Commission had ordered certain railroads to install automatic train control devices on one or more divisions of their road. In 1927, four roads made extensive installation of train control devices beyond the territories specified by orders of the Commission. See RAILWAY ACCIDENTS, and paragraphs on *Railways* or *Transportation* under the different States and countries.

RAILWAYS, ELECTRIC. The year was notable for the completion of the Illinois Central electrification at Chicago; the opening of a ten-mile link into Seattle, Wash., on the Chicago, Milwaukee & St. Paul giving this road a total of 655 miles of electrically operated line into Seattle and Tacoma; and the almost completed newly located line of the Great Northern in the Cascade Mountains. An unusually powerful storage battery locomotive with gasoline-electric auxiliary was put in switching service at Chicago by the Chicago & Northwestern. Incorporating features of both storage battery and electric drive, this locomotive proved very satisfactory in the particular kind of work for which it was designed. Power could be supplied from either the battery or the gas-electric unit. If the battery were inadequate to supply unusual demands for power, the gas engine-driven generator was so connected as to supply energy to the motors. When running on battery alone, the engine set charged the batteries. The locomotive was of the steeple cab type, with two four-wheel trucks, and weighed 118½ tons.

The Illinois Central improvement at Chicago included electric operation of suburban traffic from Chicago to Matteson, 28 miles; to South Chicago on a 4.8-mile branch and to Blue Island over another line 4 miles long. At the close of the year, more than 90,000 suburban passengers were being handled every week day in 418 electric trains. Improvement in the running time of trains was accomplished, to the extent of from 15 to 30 per cent. The system was 1500-volt, direct current from overhead conductors, and the motor cars, each of which seated 84 passengers, were equipped with four 250-horse power motors.

The electric system installed for suburban traffic at Melbourne, Australia, in 1926, was reported to be so satisfactory that the Government of New South Wales decided to undertake the electrification of the suburban lines around Sydney.

Motor-generator locomotives built for the New York, New Haven & Hartford in 1926 were highly successful and seven more were under construction during 1927. (See YEAR BOOK, 1926, *Railways, Electric.*) There were also under construction several motor-generator locomotives for the Great Northern Railway, for operation on 11,000-volt, single-phase current, which is supplied to the traction motors at 1500 volts, direct current. These engines had two three-axle trucks, each of which was equipped with three 750/1500-volt motors. The 11,000-volt power from the overhead trolley was transformed down to 2300 volts on the locomotive for the operation of a single-phase motor, which in turn operated two 1250-kw. direct current generators furnishing energy to the driving motors. These locomotives were intended for use on an 80-mile stretch between Skykomish and Wenatchee, Wash.

The Paulista Railway, in Brazil, ordered four 115-ton, 3000-volt, freight locomotives for freight service. Several of the same type already were in use on that line.

For special localities, as in and near large cities, the Diesel-electric locomotive received considerable serious attention. One of these was in service on the New York Central, in New York City and another of 600 horse power, weighing 60 tons, was at work on the Long Island R. R. Both of these were in switching service. A Diesel-electric motor car was built for the Canadian Pacific having a 300-h.p., 800-rpm. engine that weighed only 6900 lbs.; a remarkably light engine. The Erie also had two Deisel-electrics, one in yard service at Akron, Ohio, and the other geared higher, for local passenger service.

An innovation in interurban railway cars was noted as the use of a worm-drive transmission between motors and axles, as well as the use of roller bearings throughout. See RAILWAYS.

RAND, CHARLES FREDERIC. An American mining engineer, died at West Orange, N. J., on June 21. He was born in Canaan, Maine, on Oct. 21, 1856, and was educated in the public schools at Portland, Me. He began his business career in 1880 by operating an iron ore mine in the Lake Superior district. From 1891 to 1896 he was manager and treasurer of the Rockefeller mining properties in Washington. In 1902 he organized the Federal Mining and Smelting Company and consolidated the lead mines of the Coeur d'Alene district of Idaho. He discovered large soft iron ore deposits on the north coast of Cuba, developed manganese mines and built the Barraco Railroad there between 1894 and 1920. He was president of the American Institute of Mining and Metallurgical Engineers, 1913–14.

RANDOLPH, HAROLD. American pianist and teacher, died at Northeast Harbor, Me., July 6. He was born at Richmond, Va., Oct. 31, 1861. Having completed his studies at the Peabody Conservatory in Baltimore, Md., under Carl Faelten (piano) and Asger Hamerik (composition), he began his career as a concert pianist in 1885. At the same time he became organist at the Roman Catholic Cathedral in Baltimore, remaining there till 1890, and from 1890 to 1906 he was organist at the Emanuel P. E. Church. In 1898 he succeeded Hamerik as director of the Peabody Conservatory; under his administration it became one of the foremost music schools of the United States. The ever-increasing responsibilities of this position greatly lessened, although they did not entirely terminate, his appearances as a concert pianist.

RAPID TRANSIT. NEW YORK SUBWAYS. While little advance was made during the year towards solving the fundamental questions involved in the complex rapid transit situation in New York City, nevertheless a number of large contracts for extensions were let and there was considerable progress in construction. The Queensboro subway was completed at both ends, giving service between Times Square, Manhattan, and Flushing, the former terminal being ready for service at the end of the year. Rapid progress was made on the construction of the Eighth Avenue subway, while the Fifty-third Street tunnel, under the East River from Eighth Avenue to Long Island City, was under active construction, the contract price for the three sections of this work being around $24,000,000. Work was started on the line from Church and Fulton Streets, Manhattan, to Cranberry Street, Furman and High Streets, Brooklyn, the latter project involving the expenditure of more than $22,000,000. Late in the year a contract was let for the Nassau Street, Manhattan, loop. The Board of Transportation reported that the contracts awarded or bid for during the year 1927 were as follows:

City's new subway system	$68,816,122.51
B. M. T. system	12,388,581.15
I. R. T. system	338,947.80
Miscellaneous contracts	191,030.05
Total	81,734,681.51

Considering the city's new subway system, contracts awarded in 1927 included sections along and under Fifty-third Street, East River and Welfare Island from Eighth Avenue, Manhattan, to Long Island City; Broadway from 173rd to 177th Street; Fulton Street and East River route from Park Place and Church Street in Manhattan to Jay and Nassau Streets in Brooklyn; Jay Street from Nassau to Willoughby Street; Jackson Avenue, Long Island City, from Arch Street to Queens Street, and Forty-fourth Drive from Jackson Avenue to East Avenue; Manhattan Avenue, Newtown Creek, Vernon and Jackson Avenues from Freeman Street in Greenpoint to Arch Street in Long Island City.

These contracts and also actual construction or bids in hand for the city's new subway system, 35 in number, brought the total to 19.65 miles of subway lines and 68.06 miles of track, extending the length of Manhattan Island to the Long Island section of Queens and the Greenpoint and Heights section of Brooklyn.

Contracts were also placed for a storage yard at 207th Street and the Harlem River. Among the contracts awarded during the year was one with the New York Consolidated Railway Company, a subsidiary of the Brooklyn-Manhattan Transit Company of which $10,458,034 was for the Nassau Street subway and $1,311,922.85 was for the completion of the Fourteenth Street-Eastern subway to East New York, which was to be completed in the spring of 1928. The Board of Transportation also completed the lengthening of 40 B.M.T. stations at a cost of $1,106,340. On the Interborough lines construction contracts totaling $338,948.80 were awarded, of which $228,888 was for the Corona-Flushing line.

During the year the Board of Transportation added a four-track subway for Fulton Street, Brooklyn, extending into Queens, and modified the proposed Livingston Street route and substituted a route in Schermerhorn Street from Court Street to Fulton Street to form a connection with the Brooklyn crosstown line and with the Jay Street, Cranberry Street, and Smith Street-Gowanus Canal line, the latter having been modified from a subway to a viaduct over the canal.

In the summer of 1927 the New York Port Authority organized a Suburban Transit Board, which included the Board of Transportation of New York, the various railroads with suburban traffic, the North Jersey Transit Commission, and the Westchester County Commission, to prepare a comprehensive suburban traffic plan for the metropolitan area of New York.

PHILADELPHIA SUBWAY. At the end of the year the new subway in Philadelphia which had been under construction for about three years was reaching completion so far as the work north of the City Hall on Broad Street was concerned. Contracts aggregating about $25,000,000 were let during the year for work on South Broad Street; while a beginning was made of delivery of operating equipment, but no decision had been made as to the method of operation.

CINCINNATI. During 1927 a study of transportation system of the city of Cincinnati was undertaken in order to determine the best possible use of a subway which had been completed at a cost of $6,100,000, with the object of bringing several interurban lines into the centre of the system. Since this work had been done most of the local transportation lines had gone out of business, largely on account of the enormous development of automobile traffic, so that the city was left with an unused project on its hands. It was decided to utilize this subway which had been constructed in the bed of an old canal, and it was believed that about $7,000,000 would be required for extensions to connect with street car lines and $3,000,000 for equipment. It was proposed to lease the subway as built to a street railway company for operation and making a unified system that would take care of the city's traffic. While the subway itself was unused the ground obtained by roofing over the tunnel was being developed as boulevard and parking space.

London. During the year a report was submitted by an advisory committee to the British Ministry of Transport stating that the effective relief of the congested traffic situation in London was possible only by a unit management and control, replacing a badly organized and competitive system of lines by a single comprehensive system and Board of Management, including the underground and other local railways, the tramways and omnibus undertakings. This would not involve public ownership but a definite system of organization where the officials of various companies would constitute the central Board of Management and would have a dual responsibility to the owners of their undertakings and to a superior authority. It was believed that with proper coördination there was sufficient traffic in London to provide a satisfactory return on the large amount of capital already invested but the committee also believed that the present competitive methods must be eliminated and various economies instituted, as well as certain new construction. The Committee was convinced that the unified transport agencies would provide the only permanent solution of the whole problem of London passenger transportation.

Sydney, New South Wales. The first part of the rapid transit electric railway system was opened in December, 1926, and included underground lines in the port district and surface lines connecting with the suburban railways and extending across the great cantilever bridge over the harbor to connect with lines in North Sydney. This work consists of the diversion of suburban traffic entering Sydney from the south by the eight-track city railway, which, running parallel to the main-line railway as far as the Central Terminal Station, would go underground to the Wynyard Station, from which four high-level tracks were planned to run across the new bridge, while two low-level tracks would loop around the business district and return to the Central local station. From Redfern, the round-trip route by the city loop is 5.5 miles, with 18 miles of track. During 1927 the section from Central to St. James was in operation. The entire project was of interest, as special solutions had been developed for various stations.

Japan. During the year plans for an extensive rapid transit system to relieve traffic conditions at Osaka, Japan, were discussed and a new system, somewhat over 33 miles in length, to cost 162,300,000 yen, was proposed, where 20 miles of the system would be elevated and the remaining part underground. The municipal authorities had sanctioned plans prepared by their engineers, but no definite action had been recorded by the central government in Tokyo. It was estimated that about eight years would be required to complete the undertaking.

RATCHFORD, Michael D. An American labor leader, died at Massillon, Ohio, December 12. Born in County Clare, Ireland in 1860 he went to the United States when a boy of 12 and soon went to work in a coal mine in Ohio, although he continued his schooling as best he could at night. He worked as a miner for more than 20 years before he assumed a position of leadership in the industry. In 1895 he was elected president of the Miners' Union in Ohio, and in the following year he was elected president of the United Mine Workers of America for a two-year term

RAYON. World production of rayon in 1927, according to *Textile World* (New York), was estimated at 265,900,000 pounds, which was an increase of 46,000,000 pounds over the estimated production for 1926. In addition to the production of the United States, discussed at greater length below and which formed over one-third of the total, Italy produced over 37,000,000 lbs.; Great Britain over 36,000,000 lbs.; Germany, 35,500,000 lbs.; France, 19,800,000 lbs.; Belgium, 16,500,000 lbs ; Holland, 16,500,000 lbs.; Switzerland 9,000,000 lbs.; and Japan 9,000,000 lbs. It was evident that this fibre had firmly established itself and that the various products were accepted by consumers on their own merits and not merely as a substitute for other fabrics. There were constant improvements in the manufacture and treatment of the fibre, and new uses for it constantly were being found. Rayon was being combined with cotton, natural silk, wool, and linen, and the manufactured fabrics were used for clothing, for household furnishing, and for decorative purposes. The increased use of rayon has resulted in the introduction of new colors and designs in the textile industry and affords new qualities of durability.

The United States in 1927 produced 75,050,000 pounds of rayon including yarns of all types and grades, of which amount the Viscose and du Pont companies together accounted for 56,000,000 pounds. These two companies accounted for 75 per cent or 64,395,000 pounds of the total U. S. distribution of 84,671,000 pounds which included surplus stocks carried over from the previous year. Not only was the American production absorbed but also imports amounting to some 16,000,000 pounds. The following figures give the 1927 production of the leading plants in the United States:

Plant	*1927*
Viscose Co.	41,000,000
du Pont Rayon Co.	15,100,000
Tubize Artificial Silk Co.	7,500,000
Industrial Rayon Corp.	3,450,000
Celanese	3,500,000
Belamose	1,400,000
Delaware	250,000
Acme	500,000
Others	2,100,000
Total	75,050,000

Imports of rayon into the United States in 1927 totaled 16,211,160 pounds, valued at $13,587,220, or an average of 83¾ cents per pound, which with duty added was equivalent to $1.28¾, according to statistics issued by the U. S. Department of Commerce. The 1927 figures showed an increase of 60 per cent in volume and 50 per cent in value over the totals for 1926, and 847 per cent in volume and 492 per cent in value over 1924, the imports for the latter year being 1,711,987 pounds valued at $2,294,558.

READ, Melbourne Stuart An American educator died at Hamilton, N. Y., on April 4 Born in Berwick, Nova Scotia on Sept. 27, 1869, he was graduated from Acadia College in 1891, and from 1892 to 1895 was the Sage Fellow in philosophy at Cornell, receiving the Ph.D. degree in 1895. Dr. Read became associate professor of philosophy at Colgate in 1895 and professor and head of the department in 1900, serving until his death. He was acting president of the college from 1920 to 1921, and president pro-tem 1921 to 1922. His published works included *English Evolutionary Ethics* (1902) and *Introductory Psychology* (1911)

RECLAMATION. The policy of the United States government to reclaim arid land had been pursued vigorously, but it had been found except in unusual cases that it was impossible to obtain repayment on the outlay and accordingly there was a tendency to abandon such work. In 1927, however, there was a resumption of this development and during the year two important projects were under consideration or in course of preparation in eastern Oregon; while the Echo Reservoir project for supplementary water supply to the Utah areas was well under way The Oregon projects involved so extensive an outlay for the irrigation works that it seemed quite unlikely that the landholders would ever be able to repay the government for the capital outlay. During the year a number of tracts in the Southeastern States were examined as to their possibility for colonization once they had been reclaimed for agricultural purposes. It apparently was the policy of those most interested in this work to await activity by the Federal government in the form of suitable appropriation. The tendency seemed to be to hold that the United States government, having made a beginning with the irrigation of arid land, should also proceed to other sections where drainage would reclaim territory hitherto unsuitable for agriculture. See Soils.

RÉCLUS, Armand. French explorer and author, died in Paris on January 10. Born in Paris in 1845, at an early age he entered the French navy. His name was closely linked with the early exploration of Central America. In 1878 when Bonaparte Wyse obtained the concession to build the Panama Canal he appointed Réclus to carry out the explorations and it was the line which Réclus traced that was later adopted for the canal. He wrote several books, the most notable of which were *The Interoceanic Canal* and *Panama and Darien*. He was a brother of Jacques Elisée Réclus, the famous geographer.

RED BANK. Battle of, see Celebrations.

RED CROSS, American. An organization chartered by Act of Congress in June, 1900, and incorporated in January, 1905. Its purpose is to supply succor to sufferers from the evils of war, and likewise to furnish similar aid in time of peace to sufferers from disaster or from any widespread pestilence or famine. The society is a member of the League of Red Cross Societies, made up of similar societies in 54 nations. All powers of control, management, and administration are vested in a central committee, of eighteen persons, six of whom are appointed by the President, six elected by the chapters, and six by the board of incorporators.

On June 30, 1927, there were 3527 chapters of the American Red Cross. Home service work for disabled veterans and their families was carried on by 2651 chapters, which spent $1,769,000, while the national organization spent an additional $1,161,223.86 for the same purpose. Home service to ex-service men and their families included assistance in filing death and disability claims for Federal and State benefits, such as compensation, bonus, etc., and social or financial aid while adjustment of claims was pending. Hospital service was conducted in 83 government hospitals, including those of the Veterans' Bureau, Army, Navy, and National Soldiers' Homes, and in 8 contract hospitals.

The year brought many opportunities to the Red Cross for rendering service, for it was a period of unprecedented disasters. There was an average of one disaster every five days and two were of unusual violence and magnitude. From mid-September to Christmas, 1926, the Red Cross was engaged in relief operations in Florida, following the most disastrous hurricane in the history of the country Four months after that task was completed Red Cross relief machinery was in operation along the Mississippi River, along a "front" of 1000 miles which extended inland from 50 to 150 miles east and west. Eight states were affected and more than 600,000 depended upon Red Cross aid for their very sustenance. From April until June, 1927, while actively engaged in flood relief in the Mississippi Valley, the organization provided relief in 21 other disasters affecting 12 states, in one alone of which approximately 17,000 people were assisted. The report for the fiscal year showed that the Red Cross rendered aid in a total of 111 disasters, of which 91 were in the United States and 20 in foreign lands, the latter including: Bulgaria, Jugo-Slavia, Azores, Turks and Caicos Islands, Bimini Island, Dominican Republic, Haiti, Cuba, Mexico, Armenia, Albania, Japan, and the Grand Bahamas. Among the insular possessions of the United States, victims of disasters in the Philippines, Alaska, and Porto Rico were assisted, while assistance was also given to American refugees in China and Syria. In the case of only two disasters, the Florida hurricane and the Mississippi flood, did the Red Cross make a nation-wide appeal for funds. A total of $8,216,893.31 was expended by national headquarters and by Red Cross chapters for disaster work in the United States during the fiscal year ended June 30, 1927. Nearly $20,000,000 in addition was collected for relief in the two disasters mentioned. The society spent $256 962.60 for assistance to victims of disasters in foreign lands.

The Nursing Service of the organization had 45,242 nurses enrolled as a reserve and a source of supply for the army, navy, Public Health Service, United States Veterans' Bureau, and for duty in emergencies, of whom 27,425 were active. In 1927, 60,850 students, 43,422 of them school students, were instructed in home hygiene and care of the sick, of whom 39,440 received certificates. At the close of the fiscal year there were 731 public health nurses supported entirely or in part by the Red Cross. They made 1,000,239 home visits, and inspected 910,349 school children. The Nutrition Service conducted 3736 classes and reached 131,426 school children with nutrition instruction.

The year marked the thirteenth anniversary of the establishment of the Life-Saving Service, in which 134,582 men, women, and children were enrolled; during the year 13,819 adults and 18,687 juniors passed the tests. Volunteer workers in chapters during the year made 175,481 garments, 2,057,912 surgical dressings, and completed more than 100,000 pages of Braille. About 250 chapters maintained motor corps services for disaster and other emergency uses. The Red Cross first aid instruction car was in continuous operation, visiting 120 cities, where 1019 meetings and demonstrations were held, with a total attendance of 190,751. Approximately 24,819 certificates were issued to those taking systematic courses of instruction in first aid. Welfare service was provided for families in communities where no other agency existed for such service, an average of 8586 families being aided each month.

On June 30, 1927, there were 5,822,757 children enrolled in the American Junior Red Cross. At the close of the membership year, August 31, the senior membership was 3,087,789. Revenues during the fiscal year were $23,300,000, leaving a balance in the treasury of $29,168,899.45, as against $17,236,480.40 in 1926. The unobligated funds remaining in the treasury on June 30 totaled $2,773,591.71 after $16,945,837.45 had been budgeted and $8,449,470.29 set aside for specified activities.

In virtue of his office, the President of the United States is president of the American Red Cross. Other officers in 1927 were: vice presidents, Robert W. de Forest and William H. Taft; chairman of the central committee, John Barton Payne; counselor, William D. Mitchell; treasurer, Charles S. Dewey; secretary, Mabel T. Boardman; vice chairman in charge of domestic operations, James L. Fieser; vice chairman in charge of insular and foreign operations, Ernest P. Bicknell. Work is centralized in three administrative divisions, one at the National Headquarters, in Washington, one in St. Louis, and the other in San Francisco.

REED COLLEGE. A coeducational, nonsectarian liberal college of arts and sciences at Portland, Oregon; founded in 1911. The enrollment for the autumn term of 1927 was 322, of whom 160 were women and 162 men, distributed as follows: freshmen, 135; sophomores, 76; juniors, 43; seniors, 36; graduate students, 2; special student, 1; new students with advanced standing, 20; old students returned, 11. The faculty numbered 30. The productive funds for the year ending Aug. 31, 1927, amounted to $1,721,745.23, and the income for the year to $86,558.28. The library contained 33,466 volumes. President, Norman Frank Coleman, LL.D.

REEVES, ALFRED GANDY. An American law teacher and author, died in Brooklyn, N. Y., on January 10. He was born in Millville, N. J., on Dec. 3, 1859, and was graduated from Princeton in 1884 as head of his class. In 1887, he graduated at Columbia Law School, again being head of his class. With two associates, Professors Chuse and Petty, in 1881 he established the New York Law School and for many years he taught there the law of real property, wills and administration of estates, trusts, etc. His principal published works. *Reeves' Cases on Wills* (1891) and *Reeves on Real Property* (1909), were widely read.

REFINING OF METALS. See METALLURGY.

REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, ALLIANCE OF. This organization was formed in London, England, in the year 1875 with the one great purpose, to encourage comity, coöperation, and efficiency in the accomplishment of Christian work. There are 106 churches connected with the Alliance, located on all the six continents. The members and adherents of the Presbyterian and Reformed Churches in the world number about 50,000,000, including those in the Evangelical Church in Germany, which has about 113,000. It was planned to hold the Thirteenth Council either in Canada or the United States. The president in 1927 was the Reverend Charles Merle d'Aubigne, D.D.; the general secretary was the Reverend W. H. Hamilton; and the American secretary was the Reverend Henry B. Master, D.D., whose offices were at 912 Witherspoon Building, Philadelphia, Pa.

REFORMED EPISCOPAL CHURCH. A denomination formed in December, 1873, by clergymen and laymen who had withdrawn from the Protestant Episcopal Church. It was the outcome of an intense discussion carried on over ritualistic tendencies. As indicated in its name, the denomination held that it supported the principles of the Anglican Church of the time of the Reformation, and of the Protestant Episcopal Church as organized after the American Revolution. Doctrine and polity, otherwise in general accord with those of the Protestant Church, were anti-sacerdotal. A General Council of the denomination meets triennially, and sat at Philadelphia, in May, 1927. Since the episcopate is regard as ancient and desirable but not as existing of Divine right, bishops do not constitute a separate house in the General Council. The denomination maintains a theological seminary at Philadelphia, Pa., and issues from that city a periodical, the *Episcopal Recorder*. Statistics for 1927 were: churches, 86; ministers, 91; church members, 18,300; Sunday school enrollment, 16,500. Bishop Robert L. Rudolph of Philadelphia, was presiding bishop of the General Council.

REFUSE, MUNICIPAL. See GARBAGE AND REFUSE DISPOSAL.

REGIONAL PLANNING. See CITY PLANNING.

REID, THE REV. DR. GILBERT. American missionary, died at Shanghai, China, on September 30. He was born at Laurel, N. Y., Nov. 29, 1857, and graduated from Hamilton College, Clinton, N. Y., in 1879, and from Union Theological Seminary, New York City, in 1882. Ordained to the Presbyterian ministry in the latter year he went to Chefoo, China, as a missionary. Throughout his life, which was spent in China, he was a champion of the interests of the Chinese, and he had one of the most romantic careers in the Orient. He started the International Institute in China and was its first director. He was wounded in the Boxer siege in Peking in 1900, and while in Shantung on one occasion he was stoned and left for dead by a mob. In 1917, when editor of the *Peking Post*, because of his opposition to China's entering the World War he was deported by the American authorities at the request of the Chinese government. He was sent to Manila for a year and then returned to the United States. He was author of numerous books on Oriental questions and served for several years as correspondent of *The London Times*, *The New York Herald-Tribune* and other well known papers.

REINDEER. See ALASKA.

RELATIVITY, THEORY OF. No significant new developments affecting the theory of relativity took place in 1927. Several of the experiments upon the results of which Einstein originally founded his theory were again repeated, with increased refinement; but, except in the case of Miller's repetition of the Michelson-Morley experiment at Cleveland, no appreciable effects due to the motion of the earth were found. The interpretation and significance of Miller's results are still uncertain; and repetitions of the same experiment by other investigators fail to show any effect.

St. John's investigations of solar spectrum wave-lengths have continued to result in the accumulation of strong evidence for the existence of the Einstein spectral displacement: Lines at the centre of the solar disk show more than the theoretical displacement at high levels, and less at low levels, probably because of Doppler effects due to descending currents at high levels and ascending currents at low levels such as are known to exist in the atmospheres of the sun and stars; at the limb, where the effect of radial currents would disappear, the displacements are nearly of the predicted amount.

The theory of relativity, however, has, since its inception, developed far beyond its original limits, and has become a powerful general method for investigating and coördinating physical phenomena; and, however its details may have to be modified to accord with future experimental results, its viewpoint and methods are permanent acquisitions of great value to mathematical physics.

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RELIGION, PRIMITIVE. See ANTHROPOLOGY under *Old World Ethnography*.

RELIGIOUS DENOMINATIONS. See articles on the respective denominations.

REMENSNYDER, JUNIUS BENJAMIN. An American clergyman, and author, died in New York City on January 2. He was born at Stanton, Va., Feb. 24, 1843, and graduated from Pennsylvania College, Gettysburg, in 1861, and from its theological department in 1865. He served in the Union army in 1862 and 1863, and was ordained to the Lutheran ministry in 1865. After pastorates in Philadelphia and Savannah, he was called to New York in 1880, and for 42 years was pastor of St. James's Lutheran Church. At the time of his death he had been pastor emeritus for three years, retiring upon completion of 59 years in the ministry. Dr. Remensnyder originated the movement which united the Lutheran bodies in adopting a common service ritual in all American Lutheran churches. He was elected president of the General Synod in 1911. His published works include: *Heavenward* (1874); *Doom Eternal* (1880); *Luther* (1883); *Lutheran Manual* (1893); *Mysticism* (1908); *The Problem of Life* (1913); *What the World Owes Luther* (1918); *Shadows of Life* (1919).

REMSEN, IRA. American chemist and educator, former president of the Johns Hopkins University, died at Carmel, Cal., on March 4. Born in New York City on Feb. 10, 1846, he studied at the College of the City of New York and at the age of 19 was graduated with the degree of A.B. Two years later he obtained his M.D. degree from the College of Physicians and Surgeons of Columbia University. He then pursued chemical courses at Munich and Göttingen and in 1870 he received the degree Ph.D. from the latter university. He was professor of chemistry at Williams College, Mass., from 1872 until 1876, when upon the organization of the Johns Hopkins University he was made professor of chemistry in the new institution, with which he was prominently identified for the remainder of his life. He was professor of chemistry from 1876 to 1913, director of the chemical laboratory from 1876 to 1908, president of the university from 1901 to 1912, and thereafter president emeritus and professor emeritus. Dr. Remsen carried out a number of important investigations in both organic and inorganic chemistry, but these were mainly in the realms of pure science, as he would not commercialize his scientific work. The Society of Chemical Industry in 1904 conferred upon him its gold medal in recognition of his discovery of saccharin. *The American Chemical Journal* was founded by him in 1879, and despite the large amount of other work devolving upon him he edited the journal for more than 40 years. He served as president of the American Chemical Society in 1902, the American Association for the Advancement of Science in the same year, and was one of the few foreign members of the London Chemical Society. In September 1923 he received from the American Chemical Society the Priestley medal, awarded for distinguished services in chemistry. He received the degree of LL.D. from Columbia, Princeton, Yale, Harvard, Toronto. Pennsylvania State College and the University of Pittsburgh. His writings include *Principles of Theoretical Chemistry* (1876); *introduction to the Study of Compounds of Carbon, or Organic Chemistry* (1885); *Introduction to the Study of Chemistry* (1887); *Elements of Chemistry* (1888); *Inorganic Chemistry* (1889); *A Laboratory Manual* (1889); *Chemical Experiments* (1895).

RENNERT, HUGO ALBERT. American educator, died at Washington, D. C., on December 31. He was born in Philadelphia, Pa., in 1858, and was graduated from the University of Pennsylvania in 1876. He held the chair of romance philology at the University of Pennsylvania from 1892, and was a member of the faculty for more than 40 years. He was the author or editor of many books on Spanish literature, and his collection of Spanish books, regarded as the most valuable private collection, was purchased by the University of Pennsylvania in April, 1927.

RENSSELAER POLYTECHNIC INSTITUTE. A non-sectarian institution for the technical training of men at Troy, N. Y.; founded in 1824. In 1927 there were 1422 students enrolled for the autumn term, distributed as follows; civil engineering, 438; mechanical engineering, 242; electrical engineering, 492; chemical engineering, 135; business administration, 41; pre-medical, 27; physics, 16; chemistry, 7; special students, 5; graduate students, 19. The teaching staff numbered 113, an increase of 7 over 1926. The productive funds amounted to $4,400,000, and the income for the year to $590,000. The total value of the property of the Institute, including market value of securities and value of buildings and equipment, was more than $10,000,000. The gifts for endowment during the year amounted to $136,700, and those for buildings to $67,500. The library contained 18,365 bound volumes and 19,963 pamphlets. President, Palmer C. Ricketts, E.D., LL.D.

REORGANIZED CHURCH OF JESUS CHRIST. See Latter Day Saints, Reorganized Church of Jesus Christ of.

RESEARCH COUNCIL, National. A coöperative organization of scientific men of America, interested in pure and applied science, including engineering and industry. It was established in 1916 by the National Academy of Sciences at the request of the President of the United States, for the purpose of coördinating the research facilities of the country for work on war problems involving scientific knowledge. By executive order it was reorganized in 1918 as a permanent body, its essential purpose being to promote scientific research and the application and dissemination of scientific knowledge for the benefit of the national strength and well-being. It maintains a close coöperation with governmental scientific bureaus and their activities, and has the formal recognition and coöperation of 75 major scientific and technical societies throughout the country, its membership being composed in large part of appointed representatives of these societies.

The activities of the Council are conducted by a series of major divisions, arranged in two groups. Each division has a chairman and from twenty to twenty-five members. One group comprises seven divisions of science and technology, representing physics, mathematics, and astronomy; chemistry and chemical technology; biology and agriculture; the medical sciences; psychology and anthropology; geology and geography; and engineering and industrial research. The other group consists of five divisions of general relations: state relations; educational relations; foreign relations; government relations; and research information. Among the larger undertakings of the Council during 1927 were: The maintenance of about 160 research fellowships in physics, chemistry, mathematics, the biological, and the medical sciences; work on the preparation and publication of International Critical Tables of Numerical Data in Physics, Chemistry, and Technology, of which two of the planned five volumes were issued during the year; the establishment, in coöperation with the American Petroleum Institute, of a Central Petroleum Institute which began a series of fundamental investigations in the physics, chemistry, and geology of petroleum, of which investigations about thirty were under way; medical problems of animal parasitology, especially ascariasis in children; scientific problems of sex; medico-legal problems; blood grouping; physical causes of deafness in children; problems in tropical agriculture and biology; state archæological surveys; fellowships in child development; seed germination; fatigue of metals; structural welding; highways research; chemistry of carbohydrates; problems of coastal subsidence and elevation; and others.

The financial support of the Council is derived, first, from a gift of $5,000,000 from the Carnegie Corporation of New York to the National Academy of Sciences, part of that sum to be devoted to the erection of a suitable building to house the Academy and Council, the income from the rest to support the work of the Council; and second, from other gifts from various sources, mostly made for the specific support of particular undertakings These sources include the Rockefeller Foundation, General Education Board, International Education Board, Laura Spelman Rockefeller Memorial, Commonwealth Fund, and various individuals and industrial concerns. The Council maintains two regular series of publications; *Bulletins*, of which 62 had been issued up to the end of 1927, and the *Reprint and Circular Series*, of which 80 had appeared. It publishes, in addition, miscellaneous publications and its *Annual Report*.

The general administrative officers of the Council in 1927 were: Chairman, Gano Dunn; first vice chairman, Thomas H. Morgan; second vice chairman, R. A. Millikan; third vice chairman, John C. Merriam; treasurer, George K. Burgess; permanent secretary, Vernon Kellogg. George E. Hale of the Mount Wilson Observatory, Pasadena, California, was honorary chairman. Headquarters of the Council are on B Street, between 21st and 22nd Streets, Washington, D. C.

RESERVE OFFICERS, Reserve Officers Training Corps. See Military Progress, under *United States*

REUNION, rā′ụ′nyôn′. An island belonging to France, about 420 miles east of Madagascar. Area, 970 square miles; population, according to the census of 1921, 172,190, of whom 167,947 were Europeans, mainly of French origin. The chief towns with their population in 1921 were: St. Pierre, 27,895; St. Denis, 21,538; St. Paul, 19,456; and St. Louis, 14,803. The chief port is Pointe-des-Galets. The principal products are rum, sugar, manioc, coffee, tapioca, vanilla, spices, etc. The production of rum in 1925 was 1,043,963 gallons, the greater part of which was exported. The exports in 1926 amounted to 164,896,000 francs and the imports to 164,883,000 francs. The chief exports were sugar and rum, and the chief imports rice and grain. In 1925, 111 vessels entered and 109 vessels cleared from ports of the island. There are about 80 miles of railways. The budget for 1925 balanced at 29,815,728 francs, and the debt on Jan. 1, 1925, was 566,500 francs. The government of the island is administered by a governor, aided by a privy council and an elected council-general. Reunion is represented in the French Parliament by one senator and two deputies.

REVOLUTION, American, Anniversaries. See Celebrations.

RHEUMATISM. One of the most significant developments of social medicine of recent years was the formation in various countries of societies for the prevention of rheumatism and chronic joint diseases which play so conspicuous a rôle in determining disability and loss of working days. Nearly one-sixth of the working men suffer from this factor. In 1926 an International Committee for the Study of Rheumatism was represented by membership from the following countries: The United States, Austria, Czechoslovakia, Belgium, Denmark, France, Great Britain, Holland, Hungary, Italy, Japan, Norway, Roumania, Russia, Spain, Sweden and Switzerland. National societies have at the same time been formed and the German

Society for Warfare against Rheumatism held its first session on August 2. See also HEART DISEASE.

RHINELAND. See GERMANY, under *History*

RHODE ISLAND. POPULATION. According to a State census made in 1925, the population was 679,260, as compared with 604,397 at the United States Fourteenth Census in 1920, and 595,986 at the census of 1915. The estimated population on July 1, 1927, was 704,000. The capital is Providence.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	46,000	61,000 [a]	$1,327,000
	1926	47,000	60,000 [a]	1,478,000
Corn	1927	10,000	380,000	456,000
	1926	9,000	369,000	424,000
Potatoes	1927	2,000	220,000	341,000
	1926	3,000	450,000	810,000

[a] tons.

MINERAL PRODUCTION. The total value of the State's mineral products in 1925 was $1,151,857; in 1924, $1,132,641. The production of stone, the largest single element in this total, was 153,230 short tons in 1925; in 1924, 171,350 tons The product was valued at $724,428 for 1925; for 1924, at $742,701. Sand and gravel and some lime and graphite were also produced.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending November 30, 1926, were $6,568,384; their rate per capita was $9.49. They included $433,238 apportioned for education. Totals not included in the above, of $516,263 in interest and $3,624,489 in outlays for permanent improvements, brought the aggregate of State expenditure to $10,709,136. Of this, $3,625,408 was for highways; $938,827 being for maintenance and $2,686,581 for construction.

Revenue receipts were $9,698,960; or per capita, $14.02. Of their total, property and special taxes yielded 44.9 per cent, attaining a per capita rate of $6.30. Earnings of departments and compensation paid the State for officials' services furnished 6.7 per cent of revenue; 36.9 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on November 30, 1926, was $11,060,134, or $15.98 per capita. Property subject to ad valorem taxation bore a valuation of $1,237,174,813. State taxes levied thereon were $1,484,003, or $2.14 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on January 1, 1927, was 196.29. No further construction of track mileage in 1927 was reported.

EDUCATION. Besides establishing the minimum length of the school year at 180 school days, the General Assembly extended the statute covering the Americanization of the foreign born so as to provide home classes for women. Appropriations, according to Commissioner of Education Ranger, in the *Journal* of the National Education Association, were made to a total of $1,250,000 for buildings for the State College and for the Rhode Island College of Education. The school population of the State, including individuals between the ages of four and 21 years, was given in 1927 as 201,045. There were enrolled in the public schools 112,869 pupils. Of these 98,300 were in the elementary schools and 14,565 in high schools.

CHARITIES AND CORRECTIONS The State Public Welfare Commission, a body of twelve appointed members serving for terms of six years, managed and controlled in 1927 the group of institutions situated on the State Farm at Cranston. These, with their respective totals of inmates on Nov. 30, 1927, were: State Reformatory for Women, 102; State Hospital for Mental Diseases, 1741; State Infirmary, 710; State Prison and Providence County Jail, 530; State Reform Schools (Sockanosset School for Boys and Oaklawn School for Girls), 218. Exeter School (for the feeble-minded) had 434 inmates and a Home and School (for dependent and neglected children) had a population of 243. The Children's Bureau had charge or oversight of 406 children in free homes and of 509 in paid homes. The Mothers' Aid Bureau furnished assistance to 303 families, 1329 individuals. A State Probation Department and a Psychological Division were maintained under the supervision of the State Public Welfare Commission. Under the appropriation supplied by a million dollar bond issue ratified at the election of 1927, construction of a women's dormitory extension at the State Hospital for Mental Diseases, a male ward at the State Infirmary, an attendants' building and a girls' dormitory at Exeter School and an addition to the office building of the State Prison were undertaken.

LEGISLATION. The General Assembly convened in regular annual session January 4, and adjourned April 21. It passed measures providing for a bond issue, previously approved by electors of the State, to a total of $7,685,000 for construction projects, including a Washington Bridge, a State office building, additions to the State College of Education and to penal and charitable institutions. From one cent, the State tax or motor gasoline was raised to two cents a gallon. A redistricting of the State for the election of State senators was provided. It allowed each city or town one senator for every 25,000 qualified electors, or residual major portion of that number, and prevented the loss to any city or town of any part of its existing representation. The proposal was to be submitted to popular vote in 1928. Similarly to be submitted to a referendum vote, was a measure abolishing the property requirement for voters in cities, and permitting its abolition in towns such as might so choose; this amendment of the State voting qualifications removes one of the last of the States from the once long list of those requiring a substantial property interest as an essential to the franchise. Biennial registration of voters, biennial elections and a grant to qualified voters absent from the State to vote by mail were also passed, to go before the people in referendum votes.

For support of the regular activities of the State government during the ensuing year there was appropriated $6,371,237. The State Board of Agriculture was reorganized and erected into a department headed by a full-time commissioner; likewise the system of testing cattle and slaughtering the tuberculous, which had been criticized, was reformed. A commission was created to construct the Washington Bridge. Women were made subject to jury duty "unless unable or unwilling." A commission was created by act to survey the water supply situation of the State. By resolution, Congress was asked to put immigrant quotas on the basis of the 1920 census. By statute, the possession of dangerous weapons was regulated. Other acts created a judicial council; established rotating funds for the use of State departments; and increased the penalty for driving a vehicle while intoxicated.

POLITICAL AND OTHER EVENTS. In October the final link in an improved highway between Providence and Fall River was opened. A new Newport County court house was completed, and was opened in September, and in Providence the County Court House Commission received plans for the new structure to be erected there. The closing of the Social Mill, one of the large textile establishments of Woonsocket, in February, caused apprehension that this plant, like the Nourse mill, closed the year previous, would be dismantled.

OFFICERS. Governor, Aram J. Pothier; Lieutenant-Governor, Norman S. Case; Secretary of State, Ernest L. Sprague; Treasurer, George C. Clark; Auditor, Philip H. Wilbour; Attorney-General, Charles P. Sisson.

JUDICIARY. Supreme Court: Chief Justice, William H. Sweetland; Associate Justices; Chester W. Barrows; Charles F. Stearns, Elmer J. Rathbun, John W. Sweeney.

RHODES, JAMES FORD. An American historian, died at Brookline, Mass., on January 22. He was born in Cleveland, Ohio, May 1, 1848, and was educated at New York University and the University of Chicago. In 1867 he went to Paris to attend lectures at the Collège de France, following which he took a course of metallurgy at the School of Mines in Berlin. He investigated the iron and steel industries in Germany and Great Britain, and after his return to America he conducted similar investigations in the southern part of the United States. From 1870 until 1885 he was engaged in his father's iron and steel business in Cleveland. He then decided to pursue his historical studies and began the preparation of a *History of the United States from the Compromise of 1850* (7 vols., 1893–1906), a political narrative and analysis of the events growing out of slavery, the Civil War, and Reconstruction. It is a most authoritative work for the period with which it deals. The author's style is by no means unattractive, and the work is uniformly impartial and characterized by a great amount of candor, sincerity, fairness and thoroughness. Mr. Rhodes was also the author of *Historical Essays* (1909); *Lectures on the American Civil War,* delivered at Oxford University in 1913; *History of the Civil War* (1917); *History of the United States from Hayes to McKinley* (1919, and rev. ed. 8 vols. 1920); *The McKinley and Roosevelt Administration* (1922). He was awarded the Loubat prize of the Berlin Academy of Science (1901); the gold medal of the National Institute of Arts and Letters (1910), and the Pulitzer prize of Columbia University for history (1918). Many American and several foreign universities including Oxford gave him honorary degrees.

RHODESIA, rō-dĕ'zhĭ-ȧ or -zĭ-ȧ. The name given to a stretch of British territory in Central Africa, extending northward from the Transvaal to the borders of the Belgian Congo and Tanganyika Territory, constituting a British protectorate; bounded on the east by Portuguese East Africa, Nyasaland and the Tanganyika Territory, and on the west by the Belgian Congo, Portuguese West Africa and Bechuanaland. It is divided into Northern Rhodesia and Southern Rhodesia by the Zambesi River; Southern Rhodesia comprises Matabeleland and Mashonaland.

NORTHERN RHODESIA. In 1911 this region was formed from the former provinces of Northeast and Northwest Rhodesia. Area, 287,950 square miles; the permanent European population in December, 1925, was 4624 and the native population, 1,140,642. The seat of the government is at Livingstone, on the Zambesi. The chief crops are corn, cotton, wheat, tobacco, fruits, and rubber, and the minerals include gold, copper, zinc, and lead. The total value of all minerals mined in 1925 was £78,477, to which lead contributed £51,455. Imports in 1925 amounted to £1,317,907; exports, £432,997. The chief exports are live animals, lead, copper, corn, flour, hides and skins, and tobacco. The administration consists of a governor and executive council and a legislative council, partly official and partly elected, the official members having the majority. Governor after Apr. 1, 1924, when the British South Africa Company was relieved of the administration, Sir Herbert J. Stanley.

SOUTHERN RHODESIA. The area of this section of Rhodesia is estimated at 149,000 square miles and the population, according to a census taken in May, 1926, 39,174 Europeans and about 834,473 natives. Capital, Salisbury.

According to the foreign trade statistics for the calendar year 1926, the combined trade of the colony amounted to £12,350,147, an increase of £1,734,760 over 1925 figures. For the past five years imports and exports have advanced progressively, the 1926 trade being about 45 per cent above the 1922 level, when the total amounted to £8,506,804. As was to be expected, the notable feature of the 1926 trade was the marked expansion in imports, which rose from £4,892,180 in the preceding year to £6,349,799. In the native products which the country exports, there were considerable gains made during 1926 in shipments of tobacco, chrome ore, coal and agricultural products. The advance in tobacco exports was particularly striking evidence of the favorable progress of the industry. Raw cotton registered an increase in the actual quantity exported but a decrease in value. Raw asbestos and gold exports declined.

Maize is the largest crop, the 1925–26 yield being 1,400,000 bags, the second highest on record. Tobacco, however, was the crop that was attracting most attention, and the 1926 crop of 5,000,000 pounds of Virginia and 346,000 pounds of Turkish tobacco was expected to be exceeded in 1927, partly as the result of the importation of American experts to teach the most modern methods of growing the product. Southern Rhodesia is highly mineralized, and is in the fortunate position of having valuable coal reserves strategically placed with respect to a vast surrounding territory.

The total revenue of the colony as brought out in the returns for the year ended Mar. 31, 1927, passed the £2,000,000 mark, and a substantial budget surplus developed in spite of an unforeseen increase in expenditures on roads and bridges and for medical prevention work.

Executive power is vested in a governor aided by an executive council; legislative power in an elected legislative assembly. Governor and Commander-in-Chief in 1927, Lieut.-Col. Sir John R. Chancellor; Prime Minister and Secretary for Native Affairs, Sir C. P. J. Coghlan.

RICE. Production estimates for 1927 received from eight important rice growing countries by the International Institute of Agriculture, Rome, indicated the yield for these countries to be 883,893,000 bushels of rough rice, or an increase of 8 per cent over the production of 1926 and of 7 per cent over the average yield for the five years 1921–1925. The rice areas of these countries showed a reduction of 5.3 per cent as compared with the average acreage for 1921–1925. The estimated yields in 1927 for the leading rice growing countries reporting were as follows: Japan 538,742,000 bushels, Korea 152,098,000 bushels, Madagascar 42,842,000 bushels, Italy 34,073,000 bushels, and Spain 13,784,000 bushels. India in 1926 reported a production of 2,259,757,000 bushels. China in normal times is estimated as producing about 30 per cent of the world's rice crop. As estimated by the Department of Agriculture the United States, in 1927, produced 40,321,000 bushels on 989,000 acres, or at the rate of 40.7 bushels per acre. In 1926 the production was 41,730,000 bushels on 1,034,000 acres, the rate per acre being 40.4 bushels.

The average farm price on Dec. 1, 1927, was 93.8c. per bushel, and on Dec. 1, 1926, $1.096 per bushel. At these prices the total value of the crop of 1927 was $37,728,000, and of the crop of 1926, $45,722,000. The yields of the eight states reporting rice production were estimated as follows: Louisiana 17,316,000 bushels, California 8,960,000 bushels, Arkansas 7,438,000 bushels, South Carolina 90,000 bushels, Missouri 75,000 bushels, Geeorgia 48,000 bushels, and Mississippi 25,000 bushels. The average farm price on Dec. 1, 1927, in these states ranged from 86c. per bushel in Texas to $1.30 per bushel in South Carolina. The average yield per acre ranged from 16 bushels in Georgia to 56 bushels in California. The exports of rice from the United States for the calendar year 1927 amounted to 239,596,451 pounds, and of rice flour, rice meal and broken rice to 70,402,695 pounds. During the same period 43,229,507 pounds of cleaned rice, 10,675,855 pounds of uncleaned rice, and 2,385,779 pounds of rice flour, rice meal, and similar rice products were imported.

United States grades for milled, brown and rough rice were promulgated by the Secretary of Agriculture and were to become effective Sept. 15, 1927. Rice grading schools were conducted during the year in Missouri and Arkansas. Progress was reported from California in the handling by farmers of the rice grain in bulk rather than in sacks.

RICE INSTITUTE. An institution of higher education at Houston, Texas, opened in 1912. The enrollment for the autumn term of 1927 was 1318, and the faculty numbered 88. The plant, equipment, and productive funds of the institution were estimated at $14,000,000, and the income from endowment for the fiscal year 1926–27 was in excess of $600,000. The library contained approximately 55,000 volumes. President, Edgar Odell Lovett, Ph.D., Sc.D., LL.D.

RICKETS. Professor A. Orgler, one of the leading authorities on this disease, gave a summary of our knowledge of it in the *Klinische Wochenschrift* for Aug. 6, 1927. Progress had been great during the previous five years, but, although there had been striking advances in treatment and prevention, there was not much known of the nature of the malady, so that the knowledge was still empirical. Rickets is clearly a disease of nutrition or metabolism of the character of an acidosis, but the latter may not represent the intimate nature of the disease. The urine in the latter shows increase in acidity and under the influence of high solar and other ultra-violet rays and cod liver oil the urine becomes normal. The most important discovery of recent years was the rôle of vitamin D in the prevention and cure of the disease, and the benefit derived from the oil was probably due to its content of this substance. Not only does direct exposure of the children to the ultra-violet rays exert a curative action, but the application of the same rays to the necessary food articles gives them new therapeutic values.

In addition to cod liver oil, milk, inert oils and various substances containing lipoids such as ergosterin have been subjected to the action of the rays, which are believed to transform certain indifferent substances into vitamin D. This use of the rays caused the mere question of diet to recede in importance.

Ergosterin, or ergosterol as it is termed in the United States, is an exact chemical substance akin to cholesterol which is supplied by manufacturers in both activated and inactivated forms, activation being effected with various forms of ultra-violet rays, one of which is the magnesium spark lamp. During the year it received an extensive trial in many clinics in Europe and the United States, and while the good results were not uniform they were in some cases startling in their rapidity and thoroughness. Although some of the clinicians assumed that the benefit was due to the vitamin D of the food medicine, others made no reference to the latter. One author preferred to term the unknown active principle the "antirachitic protective and curative substance" which is presumably absent, or present in insufficient quantity, in the rachitic infant. See Food and Nutrition.

RIDEOUT, Henry Milner. An American author, died at sea on September 17. He was born in Calais, Maine, on Apr. 25, 1877, and graduated from Harvard in 1899, but remained at the university as instructor in English until 1904. He edited several text books in collaboration with Charles T. Copeland. Mr. Rideout was a prolific author of short stories and novels, usually salted with adventure. Among the titles are *The Siamese Cat* (1907); *Dragon's Blood* (1909); *The Twisted Foot* (1910); *White Tiger* (1915); *The Winter Bell* (1922); *Man Eater* (1924).

RIGGE, William Francis. An American astronomer, died at Omaha on March 31. He was born in Cincinnati, Ohio, Sept. 9, 1857, and after the grammar school entered St. Xavier College, Cincinnati, and graduated in 1870. In 1875 he entered the Jesuit Order and commenced a three years' course in philosophy, mathematics and the sciences. He was ordained priest in 1890, and a year later became teacher of mathematics and astronomy in St. Louis University. In 1896 Father Rigge went to Creighton University, Omaha, and remained there as professor of astronomy until his death. Through his efforts the Creighton Observatory was built and a science department established. His published works are *The Graphic Construction of Eclipses and Occultations* (1924) and *Harmonic Curves*

(1926). For the latter work he spent 10 years in devising and perfecting a machine for drawing such curves. He also contributed to many scientific magazines.

RINKOLITE. See CHEMISTRY, under *Mineralogical Chemistry.*

ROADS AND PAVEMENTS. With county, State and Federal-aid highways rapidly being spread in one great network over the whole United States there was no longer much difference between highway improvement and city pavement except that granite or other stone block pavements were still being put down sometimes in city streets under very heavy traffic. Even here the demand was growing for a smoother type of pavement, either all concrete from base to surface or a heavy base of concrete surfaced with asphalt—alternative types of construction widely used on the country highways subjected to heavy traffic.

FEDERAL-AID ROADS. During the fiscal year ended June 30, 1927, about 8300 miles were added to the improved roads in the Federal-aid highway system, bringing the total length of these roads up to 64,209 miles according to the annual report of the United States Bureau of Public Roads. Federal aid to State road construction totaled $81,371,000 for the year, the excess over the annual appropriation of $75,000,000 for this purpose having been made up from unexpended balances of the previous year. "The annual highway bill of the country," the report mentioned states, "is in excess of a billion dollars, including all expenditures of the Federal, State, county and other local government, for construction, maintenance and administration." The Federal contribution to this amount "is less than 8 per cent, and the States alone spent, from their own funds, more than six times the amount they received from the Federal government." The Federal-aid highway system comprises a total of 185,000 miles, as laid out a few years ago, of which about a third had already been improved with Federal assistance. Bridges over 20 ft long built by States with Federal aid in 1926–27 aggregated almost fifty miles in length. Of these bridges, the one across the Choctawhatchee River in Florida between Westville and Caryville is more than two miles long, and two others are each more than a mile in length. See AGRICULTURE, U. S. DEPARTMENT OF.

GASOLINE AND AUTOMOBILE TAXES. For the 48 States of the Union, according to *American Highways* (the official organ of the Association of State Highway Officials, Washington, D. C.), taxes on gasoline and automobiles totaled almost $475,000,000 for the year 1926. Massachusetts and New York were the only States in the Union at the close of 1927 without gasoline tax, Illinois and New Jersey having provided for such a tax for the first time during the year. Ohio's gasoline tax, according to *American Highways* was five cents, an amount which was also levied in the States of Arkansas, Florida, Kentucky, New Mexico, and South Carolina. One State has a 4½ cent rate, while in nine the rate is four cents, in two 3½ cents, in 17 three cents, in 12 two cents—the latter being the rate in the two accessions to the list in 1927, Illinois and New Jersey, but in New Jersey the local personal property tax on automobiles was abolished by the new law.

SNOW AND FLOODS. About 117,000 miles of main roads in 36 States of the Union, according to figures compiled by the American Automobile Association, were to be kept clear of snow in the winter of 1927–28 at an estimated cost of over $5,000,000. The Association also estimated that for every hundred dollars spent in snow removal a thousand dollars is gained in increased efficiency of transportation and business. The average cost of highway snow removal in 1926–27 was set by the association named at $43 per mile for the 106,000 miles kept clear that winter, ranging from $6 a mile in Virginia to $135 a mile in Wisconsin. Thousands of miles of roads were submerged in the Mississippi Valley by the floods of 1927, but mile for mile the damage done by the mere submergence was small compared with the ruin to hundreds of miles of road in the flooded districts of New England in November. In Vermont and New Hampshire, particularly, not merely the roadbeds but for many long stretches the roadways for many feet beneath were washed out. In special one-day sessions in each of the states named, Vermont appropriated $8,000,000 and New Hampshire $3,000,000, for the reconstruction of the roads and bridges.

A NEW HIGHWAY PROBLEM. The completion of great bridges and tunnels on main highway routes is introducing a new problem in highway construction. Large as is the cost of the Holland vehicular tunnel between New York City and Jersey City, put in operation late in the year, it was only a beginning of what is required to accommodate the 20,000,000 or more of vehicles that will pass through the tunnel yearly. On the New York side, existing streets, although inadequate, serve the incoming and outgoing traffic, but on the New Jersey side it was necessary to build many miles of new highway extending through Jersey City across the meadows through Newark and on into Elizabeth, at a total cost of some $30,000,000. This highway was to be about 13 miles long.

FOREIGN. Contracts were let early in 1927 and later construction was started on a central highway for Cuba extending the whole length of the island from Pinar del Rio to Santiago. For this distance of 705.6 miles the road was to be paved to a width of 20.66 ft. with an American type of bituminous surfacing on a concrete basis, with thickened outer edges. The construction work was let in two contracts, 70 per cent going to the proprietors of the type of surfacing adopted and 30 per cent to a Cuban firm. Unit prices of the two contracts total about $76,000,000. The National Assembly of Czechoslovakia authorized a national highway fund of $30,000,000 in 1927 to be used during ten years for the construction and maintenance of roads. Another law provided for national taxation of motor vehicles for the benefit of the highway fund, as also were devoted the receipts from import duties on mineral oils and automobile tires.

COUNTY AND CITY WORK. As illustrating the division of a county highway appropriation among several branches of the work, it may be stated that of $8,000,000 bonds for highway purposes voted by Allegany County, N. Y., $4,500,000 will go for new construction; $1,088,000 for what is termed "joint road" improvement; $1,162,000 for reconstruction and widening; $800,000 for grade crossing elimination; $500,000 for the elimination of dangerous curves; and $400,000 for the erection of safety barriers. To supervise this work the county commissioners set up a department of public works and appointed a chief engineer, the latter to be assisted by an engineering staff.

Detroit may be cited as a illustration of extreme activity in paving due to its rapid growth for some years past. During 1927 Detroit paved 168 miles of street or a total area of 3,338,000 sq. yd. at a total cost of nearly $11,000,000. In addition it paved 233 miles or 2,346,000 sq. yd. of alleys at a total cost of $5,500,000. For the five years 1923–1927 Detroit paved 544 miles of streets and 223 miles of alleys at a total cost of over $50,000,000, this sum not including money spent for maintenance and repaving of existing streets. Even with all this activity only 1380 out of a total of 2670 miles of streets were paved at the close of the year, and only 410 out of 1850 miles of alleys. These activities and the work yet remaining to be done are explained in part by the fact that in 1924–25 Detroit annexed 46 square miles of outlying territory in which there were 990 miles of unpaved streets.

Bibliography. New books and new editions are: Agg and Brindley, *Highway Administration and Finance* (New York); Harrison, *Management and Methods in Concrete Highway Construction* (New York); Green, *The Science of Road Making* (London); Neumann, *Der Neuzeitliche Strassenbau* (Berlin).

ROBBINS, Wilford Lash. An American clergyman and theologian, died at Bethel, Maine, on September 5 Born at Bethel in 1859, he was graduated from Amherst in 1881 and received his theological education at the Episcopal Theological Seminary at Cambridge, Mass. He was ordained in 1884 and advanced to the priesthood the following year. After two years as rector at Lexington, Mass., he became dean of All Saints' Cathedral in Albany. He was well known for his sympathy with high-church doctrine. He was elected dean of the General Theological Seminary in New York City, serving from 1913 until 1916. He received the degree of D.D. from St. Stephens' College, 1891; Amherst, 1903; Princeton, 1908, and the General Theological Seminary in 1912. He was made LL.D. by Hobart in 1905. He wrote *An Essay Toward Faith* (1900); and *A Christian Apologetic* (1902).

ROBINEAU, Georges. A French financier, died in Paris on April 9. He was born at Bar-le-Duc in July, 1860, and was educated in that town. Specializing in finance, in 1886 he entered the Bank of France where he gradually rose successively through responsible posts to become governor, 1920–1926. During these years of his governorship of the bank his attitude was subject to considerable controversy. He was reproached with being too conservative and with placing the interests of the bank above those of his country. He strongly opposed any resort to inflation, even though compelled to continue printing bank notes during 1925 and 1926 to meet the needs of the treasury, and he remained a firm believer in the ultimate recovery of the franc. When Caillaux took office in June, 1926, as minister of finance he stipulated for a free hand as regards the personnel of the bank and Governor Robineau resigned.

ROBINSON, Frederic Cayley. An English artist, died in London on January 5. Born at Brentford, near London, on Aug. 18, 1862, he received his early education at Cliftonville, Kent, and later studied at the Royal Academy Schools in London, and in Paris and Italy. Much of his art shows the influence of Puvis de Chavannes, but may be identified more closely with the work of the Pre-Raphaelites than with modern tendencies. This is especially indicated in the carefully drawn, minutely finished details and in the elongated, quaintly mediæval effects. His "Souvenir of a Past Age" was exhibited in the Royal Academy in 1895 and later went to Adelaide, Australia. "Close of Day" (1896) was hung at the Paris International Exhibition. His "Youth" went to South Africa, "A Winter Evening" and "The Fisherman" are in the Italian National collection, and "The Death of Abel" is in the Luxembourg in Paris A pastoral painted in 1924 was purchased for the British nation. He illustrated Genesis for the Medici Society. Robinson was also interested in marine paintings and spent two years aboard a small yacht to paint "Outward Bound" and "Drifting."

ROCHESTER, University of. A coeducational, non-sectarian institution of higher education at Rochester, N. Y.; founded in 1850. It consists of three schools: the College of Arts and Sciences, composed of a college for men and a college for women; the Eastman School of Music; and the School of Medicine and Dentistry. A school of nursing is maintained in conjunction with the Strong Memorial Hospital, the property of the University. The enrollment for the autumn session of 1927, exclusive of extension division and special music students, totaled 1487, distributed as follows: arts and sciences, 953, of whom 503 were men and 450 were women; bachelor of music course, 305; certificate of music course, 41; home economics, 15; medicine and dentistry, 80; nursing, 56. For the summer session 838 were enrolled in the arts college, and 479 in the music school. There were 1750 in the extension division. The faculty had 283 members, as follows: college of arts and sciences, 105, 27 of whom were new appointments; school of music, 83; school of medicine and dentistry, 101, of whom 47 were on full time. The productive funds as of June 30, 1927, were $25,614,000 and the total resources, including land, buildings, equipment, and endowment, were approximately $43,187,910. The main libraries contained over 125,000 volumes, the Eastman library over 16,500, and the school of medicine library over 3000. During the year a twelve-story building was constructed for the school of music to provide much needed practice rooms, gymnasium and other facilities. Ground was broken on May 21, 1927, for the first of the new buildings of the college for men; other buildings were begun during the year, to be completed by 1930. President, Rush Rhees, A.M., D.D., LL.D.

ROCKEFELLER FOUNDATION. An institution chartered in 1913 "to promote the well-being of mankind throughout the world." The scope of its activities in 1927 was in a broad way indicated by the names of the two divisions through which it carried on its work: the International Health Division and the Division of Medical Education.

The Rockefeller Foundation during 1927 (1) gave funds for land, building, equipment, operation, or endowment to 19 medical schools in 14 countries, including the faculties of medicine at the Universities of Montreal; Edinburgh; Strassburg; Cambridge; Brussels; São Paulo, Brazil; University College, London; University of Lyons; American University of Beirut; Chulalongkorn University, Bangkok, Siam; and the University of Zagreb, Jugo-Slavia (toward the maintenance and equipment of a department of hygiene); to the College of Medicine of the State University of Iowa, and to various other medical schools in Japan, China, Italy, and France. (2) The Foundation continued to support the Peking Union Medical College and to promote the better preparation of Chinese medical school matriculants by giving aid to improve the teaching facilities of the departments of physics, chemistry, and biology in the following institutions: Fukien Christian University, Foochow; National Southeastern University, Nanking University, and Ginling College, Nanking; Lingnan University, Canton; Nankai University, Tientsin; St. John's University and Shanghai College, Shanghai; Shantung Christian University, Tsinan; Soochow University, Soochow; Yenching University and Tsinghua College, Peking; and Yale-in-China, Changsha. (3) Assistance was also given to the departments of physics, chemistry, and biology in 13 Chinese institutions and in Chulalongkorn University, Bangkok. (4) Funds were given to the University of London for the purchase of a site.

(5) With a view to improving facilities for the training of public health workers, contributions for building, equipment, maintenance, or endowment were made during the year to nine institutes of hygiene or public health, namely: the School of Hygiene of the University of Toronto, for endowment; the Harvard School of Public Health, for endowment; the Institute of Hygiene, São Paulo, toward the construction and equipment of a new building; the State Institute of Public Health, Prague, Czechoslovakia, for building and equipment; the London School of Hygiene and Tropical Medicine, toward land, building, endowment, and maintenance; the State Hygienic Institute, Budapest, Hungary, toward building and equipment; the State Institute of Hygiene, Oslo, Norway, for building; the School of Hygiene, Warsaw, Poland, for salary and traveling expenses of a biochemist appointed to organize and direct the Department of Biochemistry; the School of Public Health, Zagreb, Jugo-Slavia, for the completion of its new building. Aid was also given toward the improvement of public health teaching in the Medical School of Harvard University and the Imperial College of Tropical Agriculture, Trinidad. (6) Seventeen nurse-training institutions in nine countries also received aid. (7) Laboratory equipment or scientific journals were supplied to institutions in 19 countries of Europe where the post-war economic pressure is still felt. (8) Assistance was given to 21 governments to bring hookworm disease under control.

(9) Funds were contributed toward the support of approximately 260 county health units in 23 States of the United States, and toward budgets for health work among the flood sufferers in 83 counties of six States in the Mississippi flood area; and aid was given to 26 local health programmes in 14 foreign countries. (10) Assistance was given in organizing or maintaining certain essential departments in the national health services of 19 foreign countries and in the state health services of 19 states of the American commonwealth. (11) Eight states of Brazil were aided in taking precautionary measures against yellow fever. (12) The Foundation participated in malaria control demonstrations in 8 Southern States of the United States, and in 11 foreign countries.

(13) In West Africa the Foundation's Yellow Fever Commission continued its studies on the Gold Coast and in Nigeria. Because of the failure of the staff to isolate *Leptospira icteroides* or to determine the means whereby the West African disease was spread, the problem changed from one of control to one of determining the identity of the disease. The 1927 programme comprised therefore (a) a careful study of all reported cases to determine their epidemiology and clinical manifestations, (b) further studies of the gross and microscopic pathology of the disease, (c) laboratory investigations, including primarily a search for a susceptible animal so that the disease might be transmitted and studied experimentally and its method of transmission in nature determined. Yellow fever was widespread on the West Coast during the year. Late in 1926 there had been an outbreak in Senegal and a recrudescence occurred in May, 1927, which developed into a considerable epidemic. A series of outbreaks occurred in native towns on the Gold Coast northeast of Accra; the French provinces of Dahomey and Togoland were infected, and cases were reported from Monrovia in Liberia.

(14) The foundation aided the advancement of biological science by support of the Institute of Biological Research of the Johns Hopkins University and by contributions to the International Abstracting Service for the publication of *Biological Abstracts;* to the State University of Iowa for research in brain physiology; to Yale University for anthropoid research; to the Australian National Research Council for biological studies in Australian universities; to the Bernice P. Bishop Museum, Honolulu, for research in Polynesian anthropology; and to the University of Hawaii toward the support of the departments of biology and psychology. (15) Eighteen hospitals in China received assistance. (16) The Foundation provided directly, or through some other agency, fellowships for approximately 800 men and women from fifty-two countries. (17) It paid the traveling expenses of more than a score of officials or professors making study visits to the United States or foreign countries, either individually or as members of commissions. (18) It lent staff members as consultants and made small gifts to many governments and institutions. (19) It gave assistance to the following items in the programme of the Health Section of the League of Nations: International interchanges of public health personnel; epidemiological and public health intelligence service; training of government officials in vital statistics; the epidemiological intelligence bureau in the Near East; and the centre of public health documentation in the Health Section, and (20) made surveys of health conditions and of medical and nursing education in several countries. (21) The Foundation aided mental hygiene projects in the United States and Canada, demonstrations in dispensary development in New York, research and teaching in hospitals and clinic services, and various studies and other undertakings in medical and nursing education and allied fields.

In Canada the provincial governments of Quebec and British Columbia were aided in developing rural health programmes. In Quebec four county health units were in operation at the end of the year, two of them joint units serving two counties each, and three additional units had been authorized. In British Columbia authorization had been given for the establishment, near Victoria, of a local health unit similar in character to a county health unit. In Spain the government was assisted in anti-hookworm work in the mines of Jaen and Cordoba provinces and in Jugo-Slavia a demonstration in rural health work was carried on in Macedonia (Southern Jugo-Slavia), while at the invitation of the government a member of the field staff of the International Health Division made a survey of public health conditions in Bosnia and Herzegovina. In Palestine the Foundation made a small contribution toward drainage projects and provided the services of a sanitary engineer who assisted the government in malaria control measures. The Philippine Islands health authorities were aided in malaria studies, and representatives of the International Health Division served as advisers on the malaria control programme and on the development of a public health diagnostic laboratory service for the Islands. Services in hookworm work were rendered in many countries.

In Italy the Foundation continued to coöperate with the National Department of Health and the government of Rome in field studies of malaria and demonstrations of malaria control, and assistance was given in organizing anti-larva campaigns and in training personnel in a number of the provinces.

ROCKS. See GEOLOGY.

RODNEY, GENERAL GEORGE BRYDGES. An American soldier, died at San Francisco, Cal., September 21. He was born at New Castle, Del., on Oct. 17, 1842, and had his early schooling in Philadelphia, Pa. At the outbreak of the Civil War he enlisted as private of Pennsylvania artillery. He was breveted captain at the battle of Stone River for bravery and later major. At the close of the war he was appointed lieutenant in the Fourth United States Artillery serving continuously in this arm. He became colonel of artillery in 1901, and brigadier-general in 1903, just before he retired.

ROENTGEN RAYS. See HEART DISEASE.

ROGERS, HOWARD JASON. An American lawyer and exposition official, died in New York City on September 28. He was born at Stephentown, N. Y., Nov. 18, 1861, and graduated from Williams College in 1884. He was admitted to the bar in 1887, and in 1893 supervised the New York State Educational Exhibit at the Chicago Exposition. In 1895 Mr. Rogers was appointed Deputy State Superintendent of Public Instruction in New York. In 1900 he went to the Paris Exposition as head of the department of education and social economy of the American Commission. He was chief of the department of education at the St. Louis Exposition, and had charge of the New York State exhibit at Seattle in 1909. From 1919 to 1922 he was manager of the Atlantic division of the Red Cross and was executive director of the New York County Chapter of the Red Cross after 1924. Columbia University made him an honorary Master of Arts and Northwestern a Doctor of Laws. The international scope of his work is evidenced by the conferring upon him of orders by France, Japan, Germany, Poland, Italy, Sweden and Belgium.

ROMAN CATHOLIC CHURCH. The year 1927 at the Vatican was noted for the many especially American incidents. On February 12 and on March 29 the Pope gave special audiences to two groups of officers and sailors of the U. S. Navy, addressing them in most affectionate terms. In June, to the Rev. Dr. Edmund Walsh, S.J., and to Cardinal Dougherty of Philadelphia he praised the generosity of the Catholics of the United States in responding to his appeal for the Near East Relief Fund. Mayor Walker of New York had an audience on September 9, when the Pope again paid a high tribute to American charity. On September 28 a party of 200 members of the American Legion were received and the Pope thanked and blessed them and the whole American people. He also on the same day expressed his admiration of and commendation for the work of the Knights of Columbus.

In his annual review of the year, in response to the greetings of the Cardinals on December 24, the Pope said he had some causes for joy, but the persecutions of the Church in Mexico, Russia, and China were "savage and barbarous episodes unequaled in cruelty and atrocities." He protested against the imputation that he had a political motive in his condemnation of *L'Action Française*. He took pride in the development of religious education in Italy and rejoiced in the happy outlook for the general welfare of the Church during the coming year. On March 31 he had received a delegation of the exiled Mexican bishops and promised to do whatever he could to alleviate the economic condition of the persecuted clergy of Mexico, and expressed the greatest admiration for the heroic conduct of the Mexican Catholics.

THE CARDINALS. Seven cardinals were created during the year and seven died. At the January consistory Mgr. Lorenzo Lauri, Apostolic Nuncio to Poland, and Archbishop Giuseppi Gamba of Turin were added to the Sacred College. At the consistory of June 20, Archbishop Van Roey of Malines and Archbishop Hlonda of Posen were created cardinals. The Pope also delivered an allocution in which he reviewed the state of the Church in China, Mexico and France. For the latter country he expressed regret at the disobedience of the Daudet faction who were a "continued scandal." He praised the mission work in China and the clergy and faithful of Mexico "bleeding for the cause of religious liberty." At the secret consistory on December 19 the Pope created five new Cardinals: Archbishop Alexis H. Lépicier, a Servite; Archbishop Raymond M. Rouleau of Quebec, a Dominican; Archbishop Pedro Segura y Saenz of Burgos, Spain; Archbishop Henry C. Binet, of Besançon; and Dom Justinian Szeroedyi, a Benedictine who was also appointed Archbishop of Gran and Primate of Hungary.

The seven Cardinals who died during the year were: Vittorio A. Ranuzzi, Camerlengo of the Sacred College, February 16; Cagiano de Azevedo, Chancellor of the Church, July 11; John Czernoch, Primate of Hungary, July 25; Henry Reig y Casanova, Primate of Spain, August 25; Patrick O'Donnell, Primate of Ireland, October 22; Alessandro Lualdi, Archbishop of Palermo, November 12; John Bonzano, former delegate to the United States, November 26. In September Cardinal Louis Billot resigned because of old age, and retired to a house of the Jesuit Order, to which he belonged.

THE HIERARCHY. The annual meeting of the hierarchy at Washington, September 14–15 was attended by 68 members including the four cardinals. A letter was received from the Pope congratulating them on their successful activities and praising the work of the National Catholic Welfare Conference. A new plan of contributions for missions was adopted; Catholic school promotion and vocations were discussed; and a request was forwarded to Rome for authorization of the celebration of the feasts of the Jesuit martyrs, Jogues, Brebeuf and their companions. The following new bishops were appointed: the Rev. Thomas J. Toolen to Mobile, Ala., February 27; the Rev. Edward J. Finnegan to Helena, Montana, and the Rev. Henry P. Rohlmann, to Davenport, Iowa, May 17; the Rev. Joseph N. Dinand, S.J., to Jamaica, August 21; the Rev. Emmet J. Walsh to Charleston, S. C., June 20; Mgr. John B. Peterson, Auxiliary Bishop of Boston, October 8; Mgr. Thomas O'Reilly to Scranton, Pa., the Rev. Edward Kelly to Boise, Idaho, the Rev. Francis Johannes to Leavenworth, Kan., and the Rev. John McNamara, Auxiliary Bishop of Baltimore, December 16. In the mission field the Rev. Pascal Robinson of Baltimore was consecrated titular Archbishop of Tiana, June 24; the Rev. Patrick J. Byrne of Washington, D. C., Prefect Apostolic of Peng Yang, Korea, November 14; and the Rev. John A. O'Shea, C. M., of Deep River, Conn., Bishop Coadjutor of Kanchow, China.

These deaths occurred among the hierarchy: Archbishop Denis J. O'Donnell, retired Bishop of Richmond, Va., June 1; Archbishop Robert Seton, Titular Bishop of Heliopolis, March 22; Archbishop John F. Canevin, retired Bishop of Pittsburgh, March 22; Archbishop J. J. Harty, formerly of Manila, P. I., Bishop of Omaha, October 29; Bishop W. T. Russell of Charleston; S. C., March 18; Bishop John J. O'Connor of Newark, N. J., May 20; Bishop Daniel M. Gorman of Boise, Idaho, June 9; Bishop Joseph G. Anderson, Auxiliary Bishop of Boston, July 2; Bishop Peter J. Muldoon of Rockford, Ill., October 8; Bishop Patrick R. Heffron of Winona, Minn., November 23.

STATISTICS. The statistics given in the *Official Catholic Directory* for 1927 showed gains in the number of priests, churches, schools, seminaries and other units. The total Catholic population was recorded as 19,483,296, an increase of 604,574. There were in charge of this body 17 Archbishops (four of them Cardinals); 99 bishops; 24,900 priests (a gain of 638), ministering in 17,651 churches, an increase of 271. The ecclesiastical seminaries numbered 141 with 13,988 students, 1393 gain. In the 6995 parish schools there were 2,167,241 pupils, a gain of 94,775. The colleges for boys numbered 179 and academies and colleges for girls, 732. In the 296 orphan asylums were 45,979 inmates. The hospitals numbered 613 and the homes for the aged, 128. Incomplete returns from the various dioceses listed 35,751 converts during the year. The reports of the 23 Catholic army chaplains showed that the Catholic services were attended by 301,038 worshipers. The latest, though not complete, records showed that there were 760,000 Catholics in the service of the United States during the World War, or 20 per cent more than the percentage of the Catholic population called for. There were five Catholics in the Senate and 35 Representatives in Congress. In the English Catholic Directory the Catholic population of England and Wales was given as 2,143,305, an increase of 87,445; priests, 4160, an increase of 35; Scotland 617; churches, England and Wales, 2135; Scotland, 432; schools, elementary, 1267; secondary, 486; pupils, elementary, 370,012; secondary, 54,465; converts, 11,714.

EDUCATION. The twenty-fourth annual meeting of the Catholic Educational Association was held at Detroit, June 27–30. There were 2242 Catholic high schools in the United States with an attendance of 204,815 pupils, an increase of 61 schools and 19,717 pupils over the previous year's figures. Of these schools, 57 per cent were located in 26 of the 103 dioceses. The graduates numbered 25,311, an increase of 4809. The Catholic colleges had 74,849 students, an increase of 14,680. The women students were 35,437. The students in ecclesiastical seminaries were 15,836. Summer schools were conducted in 80 institutions. During the year Bishop Thomas J. Shahan, rector of the Catholic University at Washington, D. C., resigned after a service of 18 years.

CONVENTIONS. The annual Supreme Convention of the Knights of Columbus, held at Portland, Oregon, August 1–3, showed that the total membership was 690,732, an increase of 51,047 for the year. The programme of war welfare work was ended June 30, towards the administration of which $43,000,000 was expended from June 16, 1917. The total assets of the order on June 30, 1927, were $25,527,861. The Convention of the National Council of Catholic Men met in Detroit, October 16–18, and of the Women, at Washington, September 24–28. At the former, Walter T. Johnson was elected national president and at the latter Miss Mary G. Hawkes to the same office for the women. The Catholic Press Association convention was held at Savannah, Ga., May 17–19; the National Conference of Social Work, at Des Moines, Iowa, May 11–18; the National Conference on Industrial Problems at Detroit, July 1–2; and the National Conference of Catholic Charities at Los Angeles, Cal., September 4–8.

BIBLIOGRAPHY. Among the more significant books of the year were: Hilaire Belloc, *The Catholic Church and History;* Martin J. Scott, S.J., *Things Catholics are Asked About;* J. A. McClorey, S.J., *The Republic and the Church; Selected Letters of Baron Friedrich Von Hugel, 1896–1924,* Bernard Holland, editor; B. C. A. Windle, *The Evolution Problem as it is To-day; The Encyclicals of Pius XI,* James H. Ryan, editor; Francis X. Doyle, S.J., *The Defense of the Catholic Church;* C. C. Martindale, S.J., *The Faith of the Roman Church;* Ailbe J. Luddy, O. Cist., *Life and Teachings of St. Bernard;* C. F. Donovan, *The Story of the 28th International Eucharistic Congress;* Peter Guilday, *The Life and Times of John England, First Bishop of Charleston;* Marjorie Erskine, *Mother Philipine Duchesne;* Carlo Prati, *Pope and Cardinals in Modern Rome;* Martin J. Scott, S.J., *Isaac Jogues, Missionary and Martyr;* William Barry, *Roma Sacra: Essays on Christian Rome;* Georgiana P. McEntee, *The Social Catholic Movement in Great Britain;* Pierre J. Marique, *The History of Christian Education;* Thomas Walsh, *The Catholic Anthology;* Pierre du Jarric, *Akbar and the Jesuits;* L. C. Fillion, S.S., *The Study of the Bible.*

ROMANCE LANGUAGES AND LITERATURE. See PHILOLOGY, MODERN.

ROME. See ARCHÆOLOGY.

ROSS, MRS. JANET ANNE. A British author, died at Florence, Italy, on August 23. She was born in Scotland in 1842, and was educated privately. The eldest child of Sir Alexander Duff-Gordon, at the age of 18 she married a banker of Alexandria, Egypt. In 1863 she became Egyptian correspondent of the *London Times*. She left Egypt in 1867 and settled in Italy, where she spent the rest of her life. Few women have known intimately so many remarkable people as she. Among her publications were *Italian Sketches, Three Generations of English Women, Florentine Villas, and Lives of the Early Medici.*

ROTARY CLUBS. Organizations established for the purposes of developing the highest ideal of unselfish service; of making practical application of that ideal to the business and professional life of the individual members, to organizations of which they may be members, and to the communities and nations in which they may live; and of advancing international peace and good will through a fellowship of business and professional men of all nations united in the ideal of service. Membership in the clubs is limited to one representative of each business, profession, or institution in a community. The first Rotary Club was formed in Chicago, in 1905, by Paul Harris, a lawyer; three years later the second club was formed in San Francisco. In August, 1910, the first 16 clubs held a convention at Chicago to form a National Association, and in 1912 an International Association was formed to include clubs at Winnipeg, Canada, and London, England.

On Nov. 3, 1927, the Rotary International consisted of 2692 clubs with an approximate membership of 132,000 in 43 countries. There were 2109 clubs in the United States, 87 in Canada, 263 in Great Britain and Ireland, and 233 in other parts of the world. The official publication of the organization is *The Rotarian*, a monthly printed at Chicago. *The Rotary Wheel* is the official publication for Great Britain and Ireland. Officers for 1927–28 were: President, Arthur H. Sapp, Huntington, Indiana; vice presidents, Walter D. Cline, Wichita Falls, Texas, Leonard T. Skeggs, Youngstown, Ohio, and I. B. Sutton, Tampico, Mexico; secretary, Chesley R. Perry, Chicago, Ill., and treasurer, Rufus F. Chapin, Chicago, Ill. Headquarters of the Rotary International are at 221 East Cullerton Street, Chicago, Ill., with a branch office at 2 Pelikanstrasse, Zurich, Switzerland.

ROTHWELL, WALTER HENRY. American orchestral conductor, died at Los Angeles, March 13. He was born at London, Sept. 22, 1872. Having received his musical education at Vienna and Munich, he began his career as a concert pianist, but turned to conducting in 1895, when he became assistant conductor to Gustav Mahler at Hamburg. After filling positions in various German theatres, he went to the United States in 1904 as conductor of Savage's *Parsifal* production, in English, and remained with the Savage organization for the next four years. From 1908 until its dissolution, in 1914, he presided over the destinies of the St. Paul Symphony Orchestra. During the five years following this engagement he lived in New York as teacher and coach. From 1919 until his death he was conductor of the Los Angeles Philharmonic Orchestra. In 1908 he married Elizabeth Wolff, one of the principal sopranos of the Savage Company.

ROUMANIA. See RUMANIA.

ROVERSI, DR. LUIGI. Italian author and American editor, died in New York on January 5. Born in Bologna, Italy, in 1859, he was graduated from the University of Bologna with high honors. He took a special art course at the Royal Academy of Fine Arts at Bologna, and was editor of *La Stella d'Italia* from 1882 to 1885. Going to America, from 1885 to 1889 he was editor of *Il Progresso Italo-Americano* in New York City, a position he left to become secretary to the director of the Metropolitan Museum of Art. Since 1904 he was editor and writer for several Italian newspapers and magazines and had lectured for the Board of Education in New York, Newark, and Jersey City. His published works are *Essays on Italian Art; State and Church in Italy* and *Ricordi Canavesani.*

ROVSING, THORKILD. A Danish surgeon, died in Copenhagen on January 14. He was born in Flensborg, Denmark, in 1862, and graduated in 1885 from Copenhagen University where in 1889 he received the degree of M.D. and was appointed professor of clinical surgery. His contributions to abdominal surgery were especially important, and many of his published works were translated into German and English.

ROWING. College rowing in 1927 was featured by two sensational upsets, the victory won by the Columbia varsity eight in the Poughkeepsie regatta and the triumph of Harvard over Yale in their annual clash on the Thames. The success of Columbia put an end to the long string of victories achieved by Western crews in the intercollegiate classic on the Hudson, while the Crimson oarsmen finally turned the tables on their rivals who had scored six successive wins. Princeton also deserved high place in the ranking through its defeat of Yale in the Carnegie Cup regatta and its triumph in the Childs Cup contest.

Columbia's winning time for the four-mile course at Poughkeepsie was 20 minutes, 57 seconds. Washington finished second in 20:5 3–5, California third in 21:12 2–5, Navy fourth in 21:21 1–5, and Cornell fifth in 21:23. The freshman eight-oared event went to the Navy with Syracuse second, Columbia third, Cornell fourth and Pennsylvania fifth. Washington won the junior eight-oared race, Columbia finishing second, California third and Pennsylvania fourth.

The fifty-fifth national championship regatta of the National Association of Amateur Oarsmen of America, held at Wyandotte, Mich., was featured by the performances of Joe Wright, Jr., son of the man who has contributed so much to Canadian rowing and who had served many years as coach of the University of Pennsylvania crews. Young Wright after winning the Canadian singles title and barely missing victory in the Diamond Sculls, England, captured the association and senior singles and the quarter-mile events at Wyandotte. The winners in other events at the national championships were: senior eight-oared shells, Wyandotte B. C.; intermediate eight-oared shells, Argonaut R. C.; senior four-oared shells with coxswain, Penn B. C.; senior doubles, Bachelors' B. C.

Cambridge University repeated its recent successes over Oxford University in their annual race on the Thames. The winner's time was 20 minutes, 14 seconds.

RUBBER. The American rubber industry, depending on raw materials shipped from foreign countries, where various schemes of restriction to control the production were practiced, manifested great interest during the year in acquiring supplies of its own upon which it could depend for raw rubber. The Ford Industrial Company of Brazil, a subsidiary of the Ford Motor Company of Detroit, acquired 3,700,000 acres in the Amazon Valley on which it proposed to undertake rubber cultivation on a large scale. The Firestone Company, which in 1926 had arranged for a lease of 1,000,000 acres in Liberia, as described in the YEAR BOOK for 1926, made further progress with its rubber planting project. In Sumatra the Goodyear interests increased their plantation holdings to about 50,000 acres by an addition of 29,000 acres, so that American holdings in this island, including those of the U. S. Rubber Company and the Continental Rubber Company, together with the plantations of the Manhattan Rubber Company in Java, amounted to some 200,000 acres under development. In the Philippine Islands progress was made in furthering rubber cultivation and it was proposed to amend the land laws so as to allow ownerships of sufficient areas for the economic production of rubber. In the Southwest, the Continental Rubber Company was developing guayule growing, while in Florida Thomas A. Edison had been carrying on experiments, with 3000 rubber and near-rubber plants, for which he claimed encouraging results.

The British policy of the restriction of rubber exports continued to be widely discussed in 1927 and at the end of the year this policy, described in previous issues of the YEAR BOOK, had been in force for five years. During the first and second restriction years the new policy failed to stimulate the market price of rubber as to result in increasing the exportable allowances, but in 1925 it became possible for producers to increase production and this continued in 1926, although the regulations were changed somewhat at this time. In the meantime, the consumption of rubber had increased to a very marked degree and in the three-year period, 1925–27, the world consumption totaled 1,674,000 tons, the yearly amounts being: 1925, 553,000 tons; 1926, 541,000 tons; and 1927, about 580,000 tons.

A significant feature of recent years has been the constantly declining degree of control of the world's production of crude rubber exercised by British colonies and territories. In 1922 British possessions produced 67 per cent of the world's rubber, but this declined to 53 per cent in 1925 under the policy of restriction. In 1926, when production was practically unrestricted, the British share amounted to 59 per cent, but in 1927 it was estimated at only 54 per cent, while for 1928, if no change was manifested, the British territories were estimated to be in a position to cultivate less than 50 per cent of the world's annual rubber production. With the decline of rubber in British possessions there was corresponding increase of production in the Netherland East Indies, where Dutch native rubber had increased from 20,000 tons dry weight, produced in 1922, to about 93,000 tons in 1927. There was also an increase in the production of rubber in Indo-China, and Siam, guayule rubber in Mexico, as well as of wild rubber in Brazil and Africa.

The world's production of all grades of rubber for the year 1927 was estimated at 625,000 tons, as compared with 614,000 tons in 1926. The importation of all grades of crude rubber into the United States in 1927 totaled 432,316 tons. The estimated consumption of crude rubber in the United States in 1927 was placed at 375,000 tons, while the consumption of reclaimed rubber amounted to 200,000 tons, this product finding increased use in the American rubber industry. The price of rubber in the New York market was fairly steady, compared with the downward sweep of prices in 1926. The prices of ribbed smoked sheets opened in January at 38⅝ cents and continued around this price or slightly above until June, when the market weakened and 35 cents was the price on June 15. Low prices continued until November, when a steady rise set in until December 1, when the market was about 40¼ cents, continuing firm until the end of the year when the market closed at 41²⁄₁₀ cents.

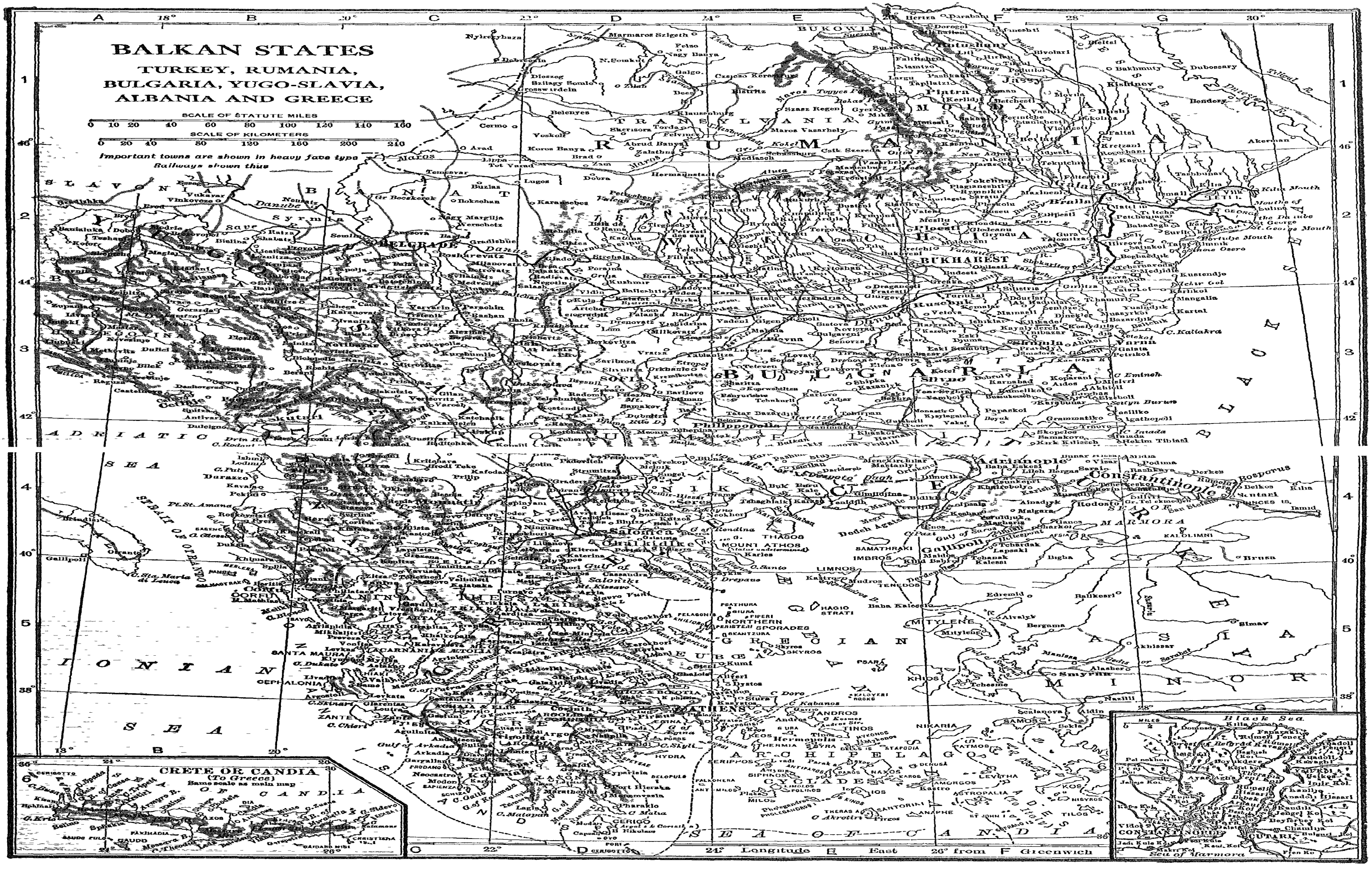
During 1927 the exports of rubber goods from the United States totaled $69,593,120 in value, or an increase of 15 per cent as compared with $60,061,332 in 1926, and 32 per cent as compared with the 1925 figures. This advance over previous years occurred in the automotive rubber goods trade particularly and was in spite of increasing competition on the part of European manufactures and a decrease in unit prices for practically all commodities. The exports for 1927, with values, were classified as follows: automotive rubber, $42,617,897 as compared with $33,173,896 in 1926; footwear $8,599,201, as compared with $9,155,606 in 1926; mechanicals, $6,890,175 as compared with $6,628,946 in the previous year; and other rubber manufactures, $11,485,847, as compared with $11,092,884 for 1926.

The total imports of rubber and manufactures in 1927 had a valuation of $348,967,116 as compared with $515,957,485 in 1926. The principal item was rubber (crude, and milk of), 954,817,255 pounds, valued at $339,874,774, as against 925,877,712 pounds in 1926, with a value of $505,817,807; while imports of jelutong or pontianak amounted to 17,437,943 pounds, valued at $2,448,657, and of guayule to 11,174,253 pounds valued at $2,659,325; and other crude, scrap and reclaimed rubber, 21,497,456 pounds, valued at $907,450.

According to the statistics compiled by the Rubber Association of America, the importations of crude rubber into the United States during the calendar year 1927 totaled 432,316 long tons, distributed as follows: Plantations, 405,543 tons; Paras, 17,576 tons; Africans, 2073 tons; Centrals, 3235 tons; guayule, 3856 tons; and Manicoba and Matto Grosso, 33 tons. On a basis of monthly importations April held the record with 48,673 tons. while February showed the smallest imports, with 27,600. In the receipts of plantation rubber for the year New York held first place with 364,170 tons, Boston second, with 16,953 tons, followed by Baltimore with 10,206 tons, Los Angeles with 8464 tons, and Philadelphia with 4919 tons.

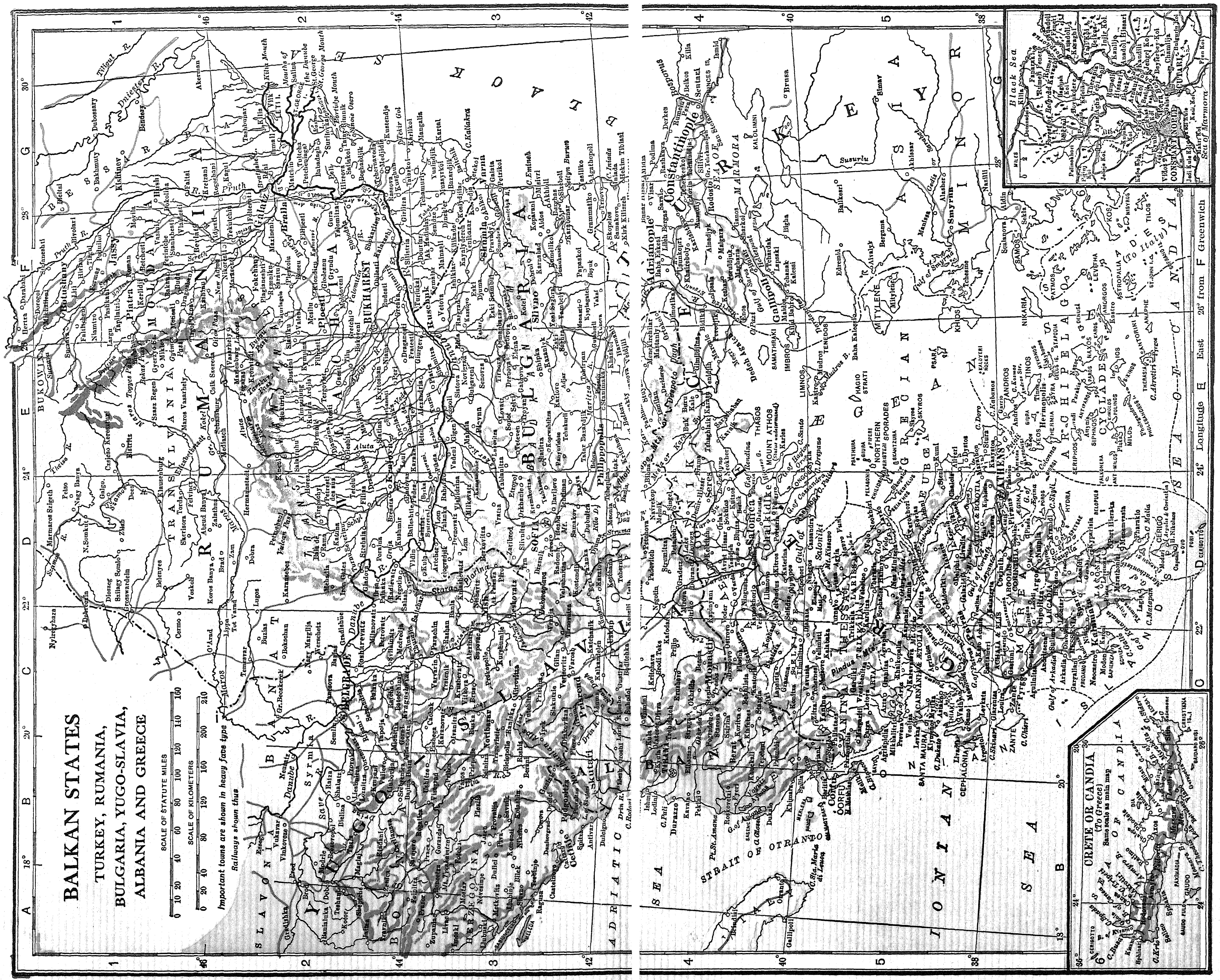
The exports of rubber and rubber manufactures in 1927 were valued at $68,657,874, as against $59,205,260 in 1926.

The principal items of manufactured domestic rubber exported in 1927 were as shown in the following table:



BALKAN STATES

TURKEY, RUMANIA, BULGARIA, YUGO-SLAVIA, ALBANIA AND GREECE



BALKAN STATES
TURKEY, RUMANIA, BULGARIA, YUGO-SLAVIA, ALBANIA AND GREECE
SCALE OF STATUTE MILES
SCALE OF KILOMETERS
Important towns are shown in heavy face type
Railways shown thus
CRETE OR CANDIA (To Greece)
Same scale as main map
BLACK SEA
ADRIATIC SEA
IONIAN SEA
ÆGEAN SEA
SEA OF MARMORA
ASIA MINOR
CONSTANTINOPLE
Longitude E East 26° from F Greenwich

were purchased during the year 109 locomotives, 100 freight cars, and 130 passenger cars. The number of locomotives included 130 that were received from Germany during 1926 on account of war reparations.

GOVERNMENT. Under the constitution of Mar. 28, 1923, which nationalized all forests and subsoil, executive power is vested in the King and a council of ministers, the King having a suspensive veto over the laws passed by parliament; and legislative power is vested in a senate of 170 members and a chamber of 347 members. The senate is composed of life members and various officials; the deputies in the lower house are elected by all tax-paying citizens 21 years of age. Kings in 1927, Ferdinand I (q.v.) and Michael (see below). The cabinet at the beginning of 1927 was composed as follows: Prime Minister, General Averescu; interior, M. Goga; Foreign Affairs, M. Mitilineu; Agriculture, M. Garoflid; Education, I. Petrovici; Finance, General Averescu; Labor, M. Jasi; Public Worship, M. Goldis; Justice, M. Cudalbu; Industry and Commerce, M. Berlescu; Secretary for Bessarabia, M. Nita; Secretary for Bukowina, M. Popovici; War, General Mircescu; Communications, General Valeanu; Public Health and Social Welfare, M. Lupas; Public Works, M. C. Meissner.

HISTORY. The situation in Rumania in the early months of the year was seriously complicated by the severe illness of King Ferdinand and the consequent question of his successor in case of death. Early in February the National Peasants' Party requested the government to call a Crown Council meeting for the purpose of removing the barriers against the return of Carol as heir apparent to the throne. As noted in the preceding YEAR BOOK, he renounced all his right to the throne and the heir apparent became Michael, his son, who was born Oct. 25, 1921. General Averescu stated in no uncertain tones that his government would not accede to the wishes of the Peasants' Party and that the question of succession was definitely settled. He furthermore ordered the suppression of all newspapers which advocated the return of Carol to Rumania. Whether or not this discussion concerning Carol or the foreign relations of Rumania, which are discussed under ALBANIA, ITALY, BULGARIA, and JUGO-SLAVIA, was the cause, the Averescu cabinet was requested to resign by King Ferdinand early in June. The press interpreted this move as a victory for the former premier, Jon Bratiano, whose resignation was discussed in the preceding YEAR BOOK.

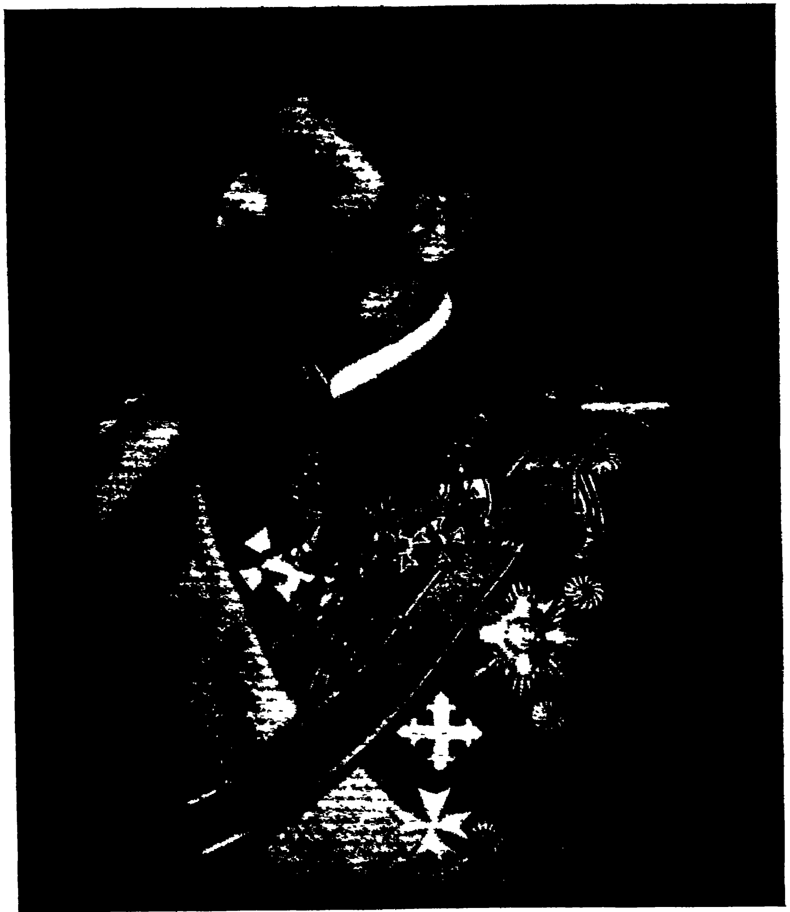
A new cabinet was immediately formed under the premiership of Baron Stirbey, whose first act was to dissolve Parliament and call for new elections early in July. Baron Stirbey's stewardship was short-lived, however, since he depended for his retention of power on a coalition of the Liberal Party and the National Peasant Party. In preparation for the new elections he desired to have the two parties nominate one set of candidates. The National Peasant Party refused to stand by such an agreement and Stirbey was compelled to resign. Ferdinand turned to Jon Bratiano, the brother-in-law of Baron Stirbey and the real head of the Liberal Party, which in a sense, was a misnomer, because the Liberal Party was the most conservative in Rumania. The other members of Bratiano's cabinet were: Finance, V. Bratiano; Interior, J. Duca; Agriculture, M. Argetoianu; Education, M. Letu; Public Worship. A. Lapedatu; Justice, S. Popescu; Health, J. Inculetz; Labor, N. Lupu; Communications, M. Aglescu; Public Works, M. Mosoin; War, General Angelescu; Commerce, M. Mrazec. Premier Bratiano took the portfolio of Foreign Affairs himself. As a result of the elections held on July 7, Bratiano gained control ot four-fifths of the parliament.

On July 20, occurred the event that all Rumanians and most of the world had been expecting to hear momentarily since the beginning of the year, the death of Ferdinand I (q.v.). The death of Ferdinand immediately brought up the succession question in all its vigor. The National Peasants' Party, the strong supporters of the return of Carol, had just been severely defeated by the Liberals under Bratiano, who was firmly opposed to Carol's coronation. Of course, elections in Rumania in the past few decades had not meant much. The party in power, whether under the leadership of Bratiano or General Averescu, had always been able to do quite as it pleased with the election of members to Parliament. According to the succession law passed after the renouncement of his claims by Prince Carol, his son Michael was to attain the throne. Simultaneously with the passing of Ferdinand five-year-old Michael became King of Rumania under the control of a regency which had been created by Parliament a year and a half before. The regency consisted of Prince Nicholas, the second son of Ferdinand, the Patriarch Miron Christea, and the first president of the Supreme Court, M. Buzdugan. Two of the members of this regency were mere tools of Bratiano and, as such, would be expected to do his will.

It certainly did not seem possible in any way for Carol to return to the throne with such conditions as these. In passing, it might be said that Bratiano had practically ruled Rumania throughout the entire lifetime of Ferdinand and was hostile to Carol because he was said to listen to the anti-Bratiano parties of the kingdom. According to press reports Carol confidently hoped to be recalled to Rumania to take up the position he voluntarily renounced, but the year closed without any such call coming. Bratiano very ably saw to it that no military uprising in the country took place as a vehicle for the return of Carol.

The position of former Queen Marie was rather pitiful. It was rumored that she had hoped to be the sole regent and was extremely disappointed when this failed to materialize. She went into virtual retirement and refused audiences to any one. Needless to say many "Carolist movements" were reported in the press during the fall, and, while there may have been some truth in them, no real agitation with any chance of success was stirred up. Rumors were also rife that the regency was causing Bratiano considerable trouble, but, outwardly at least, he had the situation well in hand and ruled with as much power as Mussolini exercised in Italy.

Just as Bratiano seemed to have completely tightened his hold on Rumania he was stricken by the hand of death on November 24. As intimated above, Bratiano had been the "man behind the throne" in Rumania during the entire reign of Ferdinand. During his reign, Bratiano had been Prime Minister eleven times. There was no period of political unrest following his death, however, because the premiership was



Underwood & Underwood

KING FERDINAND I
Died July 20, 1927

P. & A. Photos

KING MICHAEL
Became King on Death of His Grandfather

RUMANIA

turned over to his brother, Vintila Bratiano. He immediately squelched any attempt at revolution by stating, "Tell the people that, whatever may befall Rumania because of my brother's death, there can be no revolution, no serious disturbances, no change in the constitution or the regency. Our people are by temperament too philosophic, too hard-working, too obedient to constituted authority, to be interested in revolutionary ideas." While former Prince Carol watched events from his seclusion in France, Vintila Bratiano declared that his return was just as remote as it had ever been. See Bratiano, Jon.

For a discussion of the anti-Semitic outbreaks throughout the country during the year consult the article Jews.

RUMANIAN LITERATURE. See Philology, Modern.

RURAL SOCIOLOGY. See Agricultural Experiment Stations.

RUSSELL, The Right Rev. William T. American Roman Catholic bishop, died in Charleston, S. C., on March 18. He was born in Baltimore, Md., on Oct. 20, 1863, and was educated at Loyola College and St. Mary's Seminary, Baltimore; the Catholic University in Washington, and the American College in Rome. After being ordained a priest in 1889 he was pastor of St. Jerome's Church at Hyattsville, Md., until becoming secretary to the late Cardinal Gibbons in 1894. He served in that position until 1908 when he went to Washington to be rector of St. Patrick's Church. In March 1917 he was consecrated Bishop of Charleston, and he was created a domestic prelate to Pope Pius X in 1911. His published work, *Maryland, the Land of Sanctuary* (1907) gained Bishop Russell much recognition as a historian. He was a member of the American Historical Association and the Maryland Historical Society.

RUSSELL SAGE FOUNDATION. An institution established by Mrs. Russell Sage in memory of her husband. The endowment was $10,000,000, to which $5,000,000 was added by will. It was incorporated by an act of the Legislature of New York in April, 1907, for "the improvement of social and living conditions in the United States of America." The Foundation does not relieve individual need but studies and interprets facts with regard to social conditions and methods of social work, makes the information available by publications, conferences and other means of public education, and seeks in these and other ways to stimulate action for social betterment. The Trustees of the Foundation are: Robert W. de Forest, president; Lawson Purdy, vice president and treasurer; John M. Glenn, secretary and general director; Frederic A. Delano, John H. Finley, Mrs. Frederic S. Lee, Dwight W. Morrow, Mrs. Finley J. Shepard and Harold T. White.

The work of the Foundation is carried on through departments whose titles and directors are as follows: Charity Organization, Mary E. Richmond; Industrial Studies, Mary van Kleeck; Publication and Library, Frederick W. Jenkins; Recreation, Lee F. Hanmer; Remedial Loans, Leon Henderson; Statistics, Ralph G. Hurlin; Surveys and Exhibits, Shelby M. Harrison, who is also vice general director of the Foundation. A consultation service on problems of delinquency and penology is under the direction of Hastings H. Hart.

The aim of the Charity Organization Department is to study and publish in the field of social case work and family welfare. In recent years the department's attention has been directed chiefly toward the laws governing marriage and their administration. The department continued its interest in child marriages, a subject on which it published a book in 1925. It was noteworthy that several states, including Pennsylvania, New York, Minnesota and Connecticut, passed laws during the year intended to prevent or discourage too early marriages. A book on marriage and the state, and a manual of statutes and case decisions bearing on marriage were being prepared by the department.

During the year a French edition of Miss Richmond's book *What is Social Case Work?*, translated by Dr. René Sand, was published; also the reports of two studies, *Securing Employment for the Handicapped*, published by the Welfare Council of New York, which resulted in the establishment of a Joint Employment Bureau for the Handicapped in New York City, and *Postponing Strikes*, an account of 18 years' experience in Canada under the Industrial Disputes Investigation Act. The latter study, which was made for the light it might throw on the problem of strike prevention in the United States, revealed that the act has been administered so as to bring in the good offices of the government as an agency of conciliation in industrial disputes, and that, administered in this way, it has been notably successful.

The work of the Department of Industrial Studies is to investigate industrial conditions in order to discover facts which may be a guide for public opinion and a basis for constructive action to improve conditions of work and industrial relations. The Department of Recreation aims to assist in bringing about adequate provision for all forms of wholesome recreation by studying the best methods of promotion, organization and administration of recreation facilities and encouraging their adoption.

Miss van Kleeck continued to serve as chairman of the Committee on Governmental Labor Statistics, appointed by the American Statistical Association. The Department of Statistics makes statistical investigations relating to social conditions. It also reviews all statistical material intended for publication by the Foundation.

As Secretary of the Committee on Governmental Labor Statistics of the American Statistical Association, Mr. Hurlin directed the preparation of a report on methods of compiling employment statistics which was published during the year by the Foundation under the title, *Employment Statistics for the United States*. The Report holds that for the prevention of the distress from unemployment in times of business depression, to which large groups of workers are periodically subject, comprehensive current information on the trend of employment is needed.

The aim of the Department of Remedial Loans is to conduct a campaign of education for the protection of small borrowers from extortion, to urge the passage and enforcement of adequate laws for the regulation of the small loan business, and to encourage the formation of credit unions. The uniform small loan law prepared by the Foundation and now in force in 24 states, was adopted during the past year by Missouri and Wisconsin. Campaigns for its adoption failed in three other states: Minnesota, Kansas and Alabama. Bills introduced for the repeal of the Uniform Law failed of passage in Virginia, West Virginia, and Tennessee, the only states where such attempts were made. The constitutionality of the law was sustained by court decisions in Colorado and Virginia. In addition to extending the uniform law and assisting in its administration the department continued its efforts to encourage credit unions as a practical and contructive means of meeting the need for small loans.

The Department of Surveys and Exhibits aims to study and develop the social survey as an aid in community improvement, and to study and develop exhibits and other methods of presenting information about social conditions and social work to the public. A book on *Publicity for Social Work* has been completed and published.

Further study was made of maintenance of Federal prisoners in county jails; comprehensive studies were also made of the jail system in the State of New Jersey and of the prisons in New York City; the jails of Tacoma and Seattle, Washington, were inspected, and advice was given in regard to many local projects for the construction of new penal institutions and for the reconstruction of old ones. A brief inquiry was conducted on the subject of prison industry.

The Library of the Foundation is open to all who are interested in social welfare. During the fiscal year ending Sept. 30, 1927, the attendance of readers and others reached the total of 23,300. The number of books circulated for use outside of the Library was 18,721. Six numbers of the bi-monthly bibliographical bulletin were issued on the following subjects: (1) Labor banks; (2) State boards of administration, control, charities and correction, public welfare, et cetera; (3) Crime prevention and repression; (4) Books on social subjects published in 1926; (5) Adult education; (6) Employment for the handicapped. In addition, the Library, in response to requests, prepared 195 typewritten bibliographies on various social topics. The Library contained about 27,000 bound volumes and 92,000 pamphlets.

The Foundation continued its financial support of the Regional Plan of New York and Its Environs during the past year. The final report, including a plan for the harmonious development of the region will, it is expected, be completed within a year. Three new publications were issued during 1927: *Planning the New York Region*, the third report of progress issued by the Plan, includes as one of its most important features a statement of the general principles upon which the final plan is to be based; *Land Values*, distribution in the New York region and its relation to various factors in urban growth, gives a comprehensive view of changes in values of real estate in Manhattan and in other sections of the region; *Retail Shopping and Financial Districts* is the final monograph in the economic series and deals with the present and future location and space requirements of these two important elements of the city. A notable increase in interest and activity in city planning took place during the year throughout the region. One indication of this was the appointment of 18 new city planning commissions, bringing the total number in the region up to 50. A county planning federation in Westchester was also organized. In many of these developments the regional plan staff were of assistance. The Committee on Regional Plan coöperated on numerous occasions with the New York City Committee on Plan and Survey.

RUSSIA. A republic comprising the greater part of the former Russian Empire; officially entitled the Union of Soviet Socialist Republics. Capital, Moscow.

AREA AND POPULATION. According to the Soviet Union Information Bureau, which supplied much of the material used in this article, the area of the Union of Soviet Socialist Republics was 8,200,000 square miles at the close of 1927. The population, according to the census of 1926–27, was 146,304,933. This is an increase of 15,000,000 in the past six years and is several millions larger than the population of the same territory in 1913. The gain in population is attributed largely to the steady reduction in the death rate, particularly from epidemic diseases. The death rate in Moscow in 1926 was 13.4 per thousand. The rural districts had yielded results more slowly to the public health campaign. Of the total population, 82 per cent was rural and 18 per cent urban. The number of unemployed (as of Oct. 1, 1927) was 1,127,000.

The Union of Soviet Socialist Republics is composed of six constituent republics with their respective populations, as follows: Russian Socialist Federated Soviet Republic, 100,593,870; White Russian Soviet Socialist Republic, 4,924,624; Ukrainian Soviet Socialist Republic, 28,887,007; Transcaucasian Federation, 4,395,161; Uzbek Soviet Socialist Republic, 5,058,161; Turkoman Soviet Socialist Republic, 1,030,549. The Russian Socialist Federated Soviet Republic contains 76 per cent of the population of the Union and 94 per cent of the area. It contains eleven autonomous republics, twelve autonomous areas and two autonomous districts and three regions ("oblast" or "krai"), with further subdivisions into provinces, counties, districts, and townships. The other constituent republics embrace similar subdivisions of autonomous republics and areas, along racial or national lines.

The census showed a strong trend of population to the cities, in line with the industrialization of the past few years. Since the urban census of 1923 Moscow and Leningrad had each increased their population by over 500,000. Other large cities had gained an average of 30 per cent in population in the three years. Population of the principal cities, census of 1926–27: Moscow, 2,019,453; Leningrad, 1,616,118; Kiev, 493,873; Baku, 446,832; Odessa, 411,416; Kharkov, 409,505; Rostov-on-Don, 304,812; Tashkent, 312,811; Tiflis, 282,918.

EDUCATION. Public education in the Soviet Union is a charge against the six constituent republics and against the localities concerned. Local appropriations are in the aggregate somewhat larger than those of the republican governments. Total appropriations for education were $344,535,000 in 1926–27 as compared with $287,370,000 in 1925–26. It was officially stated that the percentage of literate persons in the population in 1927 was 44.5 as compared with 35.5 per cent in 1920, an increase of nearly 30 per cent in seven years. Between 65 and 70 per cent of the children of school age were reported in schools in the spring of 1927, and universal compulsory education was predicted by 1933. In 1926–27 the number of common schools was 106,729 with 9,800,000 pupils, as compared with 104,610 schools and 7,200,000 pupils in 1914–15. The number of pupils in secondary schools in 1926–27 was 783,000, as compared with 564,000 in 1914–15. At the close of 1926 there were 46,759 "stations for eliminating illiteracy" with 1,515,969 pupils. Of these 88 per cent were in the villages. It was stated that during the previous five years 5,300,000 persons, mostly adults, had been taught to read and write in such stations. Enrollment in vocational institutes was reported as 102 per cent greater than in 1914–15 and in higher educational institutions, 48.8 per cent greater.

PRODUCTION, ETC. Land and natural resources are held in trust by the government for the general population, and may not be acquired by private title. Every citizen is entitled to secure land for cultivation, the form of tenure being that of perpetual leasehold. Natural resources are exploited by state trusts, by mixed companies, under concession, in which the state has a participating interest; or by private companies under concession. Such private concessions run for a limited time (generally 15 years). The transport system, and the posts, telephones, and telegraphs, are operated as government departments. Industry is conducted largely by state trusts. Private factories employing not over 20 persons may operate without formality. For enterprises employing 21 to 100 persons permission of local authorities is required, and for larger enterprises a special leasing or concession agreement from the government is necessary. Many industrial enterprises are conducted by the coöperatives.

Reports of the harvest received late in 1927 indicated a grain crop of about 73,200,000 metric tons, as compared with 74,385,000 metric tons in 1926. Total pre-war production in the same territory is estimated at about 75,000,000 metric tons. The cotton crop of 1927 was estimated at about 900,000 bales as compared with 760,000 bales in 1926 and a five-year pre-war average of 953,000 bales. The sugar beet crop of 1927 was estimated at 9,500,000 tons as compared with 6,390,000 tons in 1926 and 10,230,000 tons in 1913. The other technical crops in the Soviet Union were substantially above the pre-war level. In 1927 the number of horses was 29,000,000, cattle, 66,000,000, and swine, 22,000,000. All livestock except horses were above the prewar figure. In the fall of 1927 there were 30,000 tractors in use, compared with 22,500 in the fall of 1926 and 500 in 1913. The total sown area in 1927 was about 256 million acres, as compared with 265 million in 1913. During the agricultural year 1926–27, ending June 30, 1927, grain exports were 3,068,000 metric tons, as compared with 2,643,800 tons in 1925–26.

The industrial output for 1926–27 (fiscal year ending September 30) was 18 per cent above 1925–26 and above the pre-war level for the first year since the revolution. In 1921 the monthly output was less than 15 per cent of that of 1913, and the recovery was particularly rapid during the past three years. The only large-scale industries still below the pre-war level in 1927 were the metal industry and ore mining. In the fall of 1927 it was announced that $609,754,840 had been allotted for capital improvements in State industry in 1927–28, 19 per cent more than in 1926–27. The funds are derived from profits, depreciation account, and government budget appropriations. One-quarter of the allotments were to go for construction of new plants. The figures do not include governmental appropriations of $75,000,000 for the development of the regional electric power system. The number of workers employed in State industry was 2,012,000 in July, 1927, as compared with 1,901,227 in July, 1926.

The total ascertained coal deposits in the Soviet Union were estimated at 428,300 million metric tons. Production in 1926–27 was 30,940,000 tons as compared with 24,389,000 tons in 1925–26 and 28,356,000 tons in 1913.

Oil production for the fiscal year ending Sept. 30, 1927, was 10 per cent above 1913 and oil exports more than doubled the figure for 1913. Production was 10,814,000 tons, as compared with 8,142,000 tons in 1925–26 and 9,215,911 tons in 1913. Exports were 2,038,000 metric tons, as compared with 1,473,150 in 1925–26 and 914,032 in 1913. The increase in production for the year was 25 per cent, as compared with 1925–26, and in exports 38.4 per cent. New drillings for the year were 1,229,344 feet, as compared with 936,500 feet in 1925–26. Drillings in 1913 were 990,300 feet. During 1926–27 the sum of $95,481,000 was spent on capital improvements in the industry and the sum of $95,326,500 has been allotted for the fiscal year 1927–28.

During 1927 several contracts for marketing Soviet oil in the Near East were announced between the Neftsyndicat (Soviet Oil Syndicate) and the Standard Oil Company of New York. They run for several years and aggregate 312,000 tons of oil annually. Similar contracts with the Vacuum Oil Company bring the total of oil furnished to these two American companies to about 430,000 tons a year. Soviet oil production in 1927 passed the Mexican production for the first time in 25 years and was second only to that of the United States. The oil reserves of the country are the largest in the world. At a conservative estimate they are figured at 2,000,000,000 metric tons, though this does not include a number of regions as yet inadequately investigated.

The Soviet textile industry increased its output from 15 to 20 per cent in various branches during 1926–27, and the production was materially above the pre-war level. The cotton industry turned out 274,000 metric tons of yarn as compared with 243,000 in 1925–26, and 2,324,000,000 meters of finished goods as compared with 2,019,070,000 meters in the previous year. The woolen industry turned out 39,200 metric tons of yarn as compared with 32,900 in 1925–26. The linen industry produced 67,400 metric tons of yarn as compared with 64,800 in 1925–26. During 1927–28 the sum of $101,182,050 was allotted for capital improvements in the textile industry, as compared with $75,138,500 in 1926–27.

The metal industry of the Soviet Union increased its output by 100 per cent in 1924–25, by an additional 62 per cent in 1925–26, and by 26 per cent in 1926–27. In 1926–27 the output of metals was 77 per cent of that of 1913. Production of agricultural machinery and of several kinds of technical machinery was far above the pre-war level. The statistics of iron and steel production, in thousands of metric tons are shown in the following table:

IRON AND STEEL PRODUCTION, RUSSIA

	1926–27	1925–26	1913
Pig iron	2,973.3	2,202.6	4,206
Martin steel	3,551.5	2,910.9	4,247
Rolled iron	2,723.9	2,240.9	3,509

Announcement was made in the fall of 1927 that plans were under way for a large expansion of gold mining. American equipment was to be largely used. Individual producers and private concessionaries were to be encouraged in the gold fields. The known gold resources of the country were estimated at close to 3000 metric tons. Production was about half pre-war. The platinum industry, which virtually ceased during and after the period of civil wars, was in process of a similar restoration. Before the war Russia had virtually a monopoly of production.

COMMERCE. The foreign trade turnover over all frontiers is shown in the following table:

1913	$1,490,495,000
1922–23	199,300,000
1923–24	484,910,000
1924–25	666,925,000
1925–26	733,130,400
1926–27	762,869,500

Exports for 1926–27 increased 15 per cent, as compared with 1925–26, and imports decreased 8 per cent. The increase in exports included a gain of 30 per cent in value in the export of grain products and of 20 per cent in value of oil products. The favorable balance of trade for 1926–27 was $28,688,500, as compared with an unfavorable balance of $45,320,000 for 1925–26.

The principal exports (European frontiers) are shown in the following table:

	1926–27		1925–26	
Products	*Metric tons*	*Rubles*	*Metric tons*	*Rubles*
Grain products	2,226,800	204,970,000	2,048,800	156,011,000
Oil products	2,005,100	82,818,000	1,422,800	69,487,000
Furs	2,700	80,319,000	2,000	63,220,000
Timber	2,183,200	70,263,000	1,666,700	52,080,000
Butter	30,300	34,224,000	27,200	30,850,000
Eggs	586,480 [a]	28,954,000	41,400 [a]	23,629,000
Manganese ore	784,700	24,090,000	673,000	21,285,000
Oil cakes	345,900	22,251,000	400,100	23,673,000
Flax and tow	41,800	19,266,000	69,600	44,782,000
Casings	2,800	9,664,000	2,500	9,280,000
Sugar	69,600	9,114,000	1,300	176,000
Poultry	9,300	7,112,000	4,200	2,936,000
Bristles	1,200	6,709,000	1,500	10,279,000
Seeds	31,100	4,152,000	141,800	14,181,000
Caviar	1,200	3,502,000	2,900	5,331,000
Hemp	1,300	258,000	7,000	2,297,000

[a] cases.

The principal imports are raw cotton, industrial machinery, agricultural machinery including tractors, non-ferrous metals, leather, wool, tea, and paper.

During the fiscal year 1926–27 the foreign trade turnover on the European frontiers was as follows: Exports, 678,200,000 rubles, imports, 623,800,000 rubles, total, 1,302,000,000 rubles ($670,530,000).

The figures for American-Russian trade by Soviet customs statistics, are as follows:

	Exports to United States	*Imports from United States*
1913	$7,290,000	$40,780,000
1923–24	4,377,500	49,955,000
1924–25	14,471,500	103,618,000
1925–26	15,759,000	62,881,500
1926–27	13,235,500	74,953,100

The principal Soviet imports from the United States for two fiscal years follow:

	1926–27	1925–26
Cotton	$42,372,366	$31,394,709
Industrial equipment	6,932,536	6,365,622
Agricultural machinery	5,451,338	3,565,679
Metals	5,211,287	2,282,713
Chemical products	885,017	633,382
Binder twine	757,920	184,951
Automotive equipment	734,047	1,462,964
Typewriters, adding machines	443,659	569,848

The principal Soviet exports to the United States are furs, manganese, precious metals, sheep casings, flax and tow, hides and skins, bristles, and licorice root.

FINANCE. By the end of June, 1924, Soviet currency was established on a gold basis, and since that time there have been no unsecured paper issues. The budgets of Soviet fiscal years, ending September 30, in million of rubles (1 ruble equals $.515) were as follows:

	1923–24 (actual)	1924–25 (actual)	1925–26 (actual)	1926–27 (estimated)
Revenues	2,298.1	2,905 1	3,900.7	5,071.5
Expenditure	2,298.1	2,875.6	3,867.8	5,002.4

Expenditures for 1926–27 include 100,000,000 rubles set aside as a reserve fund. The details of the revenues for 1926–27 in millions of rubles was as follows:

Direct taxation	887.6
Excise and customs	1,358.8
Stamp duties	167.0
State properties and undertakings	598.7
Posts and telegraph	155.9
Transportation	1,498.3
State loans	307.6
Sundry receipts	97.6
Total	5,071.5

The currency in circulation on Oct. 1, 1927, was 1670.8 million rubles, compared with 1343.1 on Oct. 1, 1926. The internal debt of the Soviet Union as of Oct. 1, 1927, amounted to 927,300,000 rubles ($477,599,500), as compared with 662,700,000 rubles on Oct. 1, 1926. The retail price index as of Oct. 1, 1927, with price of 1913 taken as 100, was 198, as compared with 208 on January 1. The wholesale price index was 170, as compared with 177 on January 1. The balance sheet of the State Bank as of Oct. 1, 1927, showed liabilities and assets of 3,863,100,000 rubles. The capital was 250,000,000 rubles, having been increased by 150,000,000 rubles during the year. Deposits and current accounts were 1,292,900,000 rubles, an increase of 169,800,000 rubles during the year. Assets of bullion, coin, precious metals, and foreign currency were 209,900,000 rubles, an increase of 46,500,000 rubles during the year.

The Federal government planned to spend $75,000,000 for hydro-electric power development in 1927–27, as compared with $50,000,000 in 1926–27. Nearly a score of regional power plants ranging from 20,000 to 65,000 kilowatts capacity have been built in the past four years. In the spring of 1927 work was begun on the Dnieper River power project which will have an ultimate capacity of 455,000 kw., the largest hydro-electric plant in Europe. It will cost $60,000,000 and take five years to build. Colonel

Hugh L., Cooper, builder of Muscle Shoals, in Alabama, was chief advisory engineer for the project.

Railways. In 1927 the railway mileage of the Soviet Union was close to 47,500 miles, as compared with about 36,000 miles in 1913 and 42,000 miles in 1917. In 1925–26 the revenues were 1,280,000,000 rubles and expenditures 1,379,000,000 rubles, giving a net deficit of 99,000,000 rubles (about $50,000,000). Included in the expenditures were construction of 856 miles of track. About 1400 miles of new line were built during 1926–27. Average daily freight car loadings for 1926–27 were 27,300 as compared with 17,400 two years before. New locomotives built in Soviet plants during 1926–27 numbered 441, compared with 118 the previous year.

Government. A description of the constitution of the Union of Soviet Socialist Republics will be found in the Year Book for 1923. At the close of 1927, the Council of People's Commissars, the executive cabinet of the Soviet government, was composed as follows: Chairman of the Council of People's Commissars, Alexis I. Rykov; vice chairmen of the council. A. D. Tsiurupa, J. E. Rudzutak, and V. V. Kuybyshev; commissar for army and navy, K. E. Voroshilov; for trade, A. I. Mikoyan; for foreign affairs, George Tchitcherin; for transportation, J. E. Rudzutak; for posts and telegraphs, I. N. Smirnov; for finance, N. P. Briukhanov; for labor, V. V. Schmidt; for peasants' and workers' inspection. G. K. Orjonikidze; chairman of the Supreme Economic Council, V. V. Kuybyshev; Director of Central Statistical Administration, V. V. Obolensky (Ossinsky); Chairmen of the central executive committee of the Soviet Union, M. I. Kalinin, G. I. Petrovsky, A. G. Cheriviakov, Gazanfar Mussabekov, Netyrbay Aitakov, Faizulla Khodzhayev. These chairmen of the Central Executive Committee are the presidents of the six constituent republics.

History

Foreign Relations. The year was a very difficult one for Soviet Russia from the point of view of relations with the larger western European Nations. The rupture with Great Britain, the recall of the Soviet Ambassador to Paris, and the assassination of the Russian Ambassador at Warsaw all conspired to unsettle the republic's dealings with those countries, which Stalin and his advisers seemed intent on keeping in a peaceful and helpful mood. Of course there are two sides to every question and it all depends on the individual's outlook on political science as to whether he agrees with Russia in the controverted matters or with the nations with which she became embroiled. The Soviet government placed the burden of all her troubles on "oil." In a review of "Ten Years of Soviet Foreign Policy" published in the November-December issue of the *Soviet Union Review*, the following paragraphs express the Soviet's attitude toward the events of 1927. The other side will be presented immediately after:

> By 1926 it appeared on the surface that relations with the larger western nations were greatly improved. In Germany, early in 1926, a 300,000,000-mark credit for Soviet trade was established under the auspices of the German Government. In Britain the credit situation for trade showed steady improvement. The exposure of the anti-Soviet forgery mill conducted by Druzhelovsky in Berlin had cleared the atmosphere of a number of sturdy misapprehensions. The campaign of hostile lies from émigré and other sources seemed somewhat abated. It appeared that the Soviet Union was entering upon an era of more normal relationship with other countries.
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> Towards the end of the year negotiations were in progress concerning the marketing of Soviet oil in foreign countries, between representatives of the Soviet Oil Syndicate and representatives of foreign oil interests. Formulas were being worked out for the distribution of the Soviet product. In this connection an agreement was reached, accepted by the foreign companies, covering "compensation" for foreign claimants of Russian oil lands.
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> The conferences broke early in January 1927 when Sir Henri Deterding, representing Royal Dutch-Shell, insisted upon a monopoly of Soviet oil export and a limitation on Soviet exports of crude oil.
>
> Thereafter began a campaign against the use of Soviet oil in England and a series of sharp attacks on the Soviet Union in a section of the British press. The situation was aggravated by irritation in certain circles in Britain over Nationalist successes in China. The attacks increased in intensity. In May came the Arcos raid and the breaking of relations by the Baldwin Government.
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> In the summer the newspapers reported that Sir Henri Deterding and certain foreign associates were seeking a monopoly for oil distribution in France, where Soviet oil sales had made heavy gains in the past few years. Sir Henri Deterding's effort failed. Thereafter, in certain French newspapers, was started a heavy barrage of attacks against the Soviet Union, curiously similar to the attacks in the British press following Sir Henri's failure to secure a monopoly of Soviet oil export. The attacks spread. An announcement from Moscow that an agreement had virtually been reached for the funding of the czarist debts contracted in France seemed to stir the die-hards to more frantic efforts to break relations. In October the French Foreign Office requested the recall, as persona non grata, of Mr. Rakovsky, the Soviet Ambassador who had conducted the difficult debt negotiations for a long period. A new Soviet Ambassador has since been appointed.
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> Thus after ten years the economic and diplomatic blockades sporadically continue. There has been a revival throughout the world of slanderous and absurd stories about the Soviet Union. Sir Henri Deterding has recently launched in the United States a publicity campaign against the Soviet oil industry.
>
> In any summary of Soviet foreign relations it would be absurd to ignore these tendencies or underestimate their sinister significance. There is no indication that events will force the Soviet Government to deflect from its policy of building up peaceful and cooperatively profitable relations with other countries. Its responsible spokesmen have often expressed the country's willingness to make notable concessions in order to assure itself the opportunity to develop its national life along the new lines, but the time has gone past when foreign interests, by threats or with the aid of diplomatic pressure, can secure control of vital natural resources held in the name of the entire people of the Soviet Union. The country, from its own effort, is now a going concern. Productivity has passed the pre-war level. The three great oil fields in particular are in better shape, physically and economically, than before the war, and their output during the past fiscal year was 10 per cent greater than in 1913. It would appear that the people of the Soviet Union are justified in taking the view that in the long run the size and richness of their country, along with their own orderly development, must outwear the hostile attacks, and that time is on the side of patience and constructive effort.

Whether the trouble was "oil" or not, the difficulties with Great Britain began shortly after the beginning of the year. The Baldwin government was seriously disturbed over the aid given by Russian trade unions to the general strike in England and could scarcely look with unconcern upon the Communistic activities in China which threatened her lives and property there. Late in February the British government sent a note to Moscow complaining of propaganda in the British Isles as against the provisions under which the Soviet government had been recognized. It specifically noted remarks by prominent members of the Russian government and acts by Soviet agents in China which were inimical to British interests there. The British note ended with the threat that if such acts as complained of were continued the trade agreement and even diplomatic relations would be broken off. The Soviet reply to London stated that it was surprised at the feeling expressed by the British note and disclaimed any hostile propaganda and demanded proof of such. The note also stated that in 1923 the British government promised to notify Moscow of any violations of the trade agreement and that up to the present no such notification had been sent to it. The note also hinted that the breaking of relations between the two countries would hurt Great Britain as much as it would Russia, and that Russia was waiting for definite proof of any breach of the agreement of 1923.

The British government did not directly reply to the Soviet note, but on May 12 made a spectacular raid on the headquarters of Arcos, Ltd., the trade organization of the Russian coöperative societies, as well as of the Soviet trade delegation. The impelling motive as given out by a member of the cabinet was that certain government documents containing military secrets had been stolen and traced to the Russian headquarters. The government admitted that the lost papers were not found, but stated that other documents were seized which justified the raid. About a week later the Russian government bitterly protested the act on the grounds of immunity granted under the trade agreement of 1921. The Russian broadside also intimated that the raid was "a most hostile act, without doubt jeopardizing the further preservation of relations between the interested states."

The Russian note was followed by several days' debate in the House of Commons, during the course of which Prime Minister Baldwin gave several instances of Soviet hostile acts against the British interests, not only at home but abroad. The result was the severance of relations with Russia by a vote of 367 to 118, the Laborites and some of the Liberals refusing to join in the resolution.

Supporting the action of his government, Mr. Baldwin issued the following statement:

> Our decision was not the result of a deep-laid plot to get up a world combination against Russia. On the contrary, as the Foreign Secretary said, we refrained for a long time from breaking with Moscow out of consideration for our Continental allies and friends. But the Soviet made it impossible for us to maintain that attitude by their refusal to listen to our repeated warnings. It is part of their propaganda to represent our policy as one which aims at war and which is based on forgery. I wish, therefore, to state emphatically that our rupture of diplomatic relations does not in any way mean or imply war against Russia.

While the Russian leaders were considerably disturbed by the British decision, it was quite apparent that they did not want war. The consensus of opinion in Soviet circles was that the documents produced by Mr. Baldwin were forgeries and that Great Britain took this step to show her resentment against the failure of her policy in China and her inability to get a monopoly of Russian oil. The British government made it clear that trade with Russia could go on as before the signing of the trade agreement, but without the vehicle of diplomatic or trade relations. In this connection it is interesting to note that, according to the United States Bureau of Foreign and Domestic Commerce, the trade between the two countries was hardly ruffled by the break in relations.

For the crisis with Poland that occurred just about this time consult the article on POLAND, *History*. The Rakovsky incident is treated in FRANCE, *History*.

DOWNFALL OF TROTSKY. The difficulties of the Stalin government with foreign countries served as a means of bringing to the fore the opposition group led by Trotsky and Zinoviev, Trotsky, who from the beginning had resented the Stalin "idea" of a semi-capitalistic state, declared that he and his followers were opposed to any such union with the bourgeois Nationalists of China as the Communists had carried out, but were unalterably for the proletariat of the earth and favored the world revolution now rather than waiting for the capitalist states to disintegrate. Trotsky also declared that Stalin, by his control over the Communist party, was weaning that party away from the principles of Lenin and was gradually evolving a capitalistic state. The upshot of the entire matter was the expulsion of Trotsky and Zinoviev from the Central Executive Committee of the Communist party for "factional activity and indiscipline."

According to reports that came from Moscow the news of Trotsky's expulsion was taken very calmly and caused virtually no excitement. In some quarters it was felt that if Trotsky remained absolutely quiet perhaps some sympathy for him and his cause might appear among the Communists. But when the expulsion occurred it was quite evident that the vast majority of the Communist party concurred in the decision. The Congress of the Communist party which met in December upheld the expulsion of Trotsky and his followers from the party. Consult article on LEAGUE OF NATIONS.

RUST. See BOTANY, under *Plant Diseases.*

RUTGERS UNIVERSITY. A non-sectarian institution of higher education at New Brunswick, N. J.; founded under the name of Queen's College, in 1766. The University consists of the following colleges: Arts and sciences, engineering, agriculture, school of education, college for women. The registration for the autumn term of 1927 was 2295, of whom 1020 were women, registered at the Women's College. The 1927 summer session had an enrollment of 1343. Of the 231 members on the faculty 149 were professors and 82 instructors. The endowment funds, etc., amounted to $3,574,000, and the income for the year to $900,000. The library contained 143,000 volumes. During the year a new physics building for the colleges for men, and a recitation hall for the Women's College, were constructed. President, John M. Thomas, D.D., Litt.D., LL.D.

RYE. The 1927 production of rye in twenty-five countries sending estimates to the International Institute of Agriculture, Rome, was 890,475,000 bushels as compared with 781,845,000 bushels in 1926. This increase represented 13.9 per cent more than the production in 1926 and 4.8 per cent more than the average yield for the five years 1921–25. The estimated yields of the leading rye producing countries reporting were as follows: Germany 286,271,000 bushels, Poland 234,943,000 bushels, Czechoslovakia 48,937,000 bushels, France 36,799,000 bushels, and Spain 27,074,000 bushels. In the crop year 1926–27 Argentina produced 3,268,000 bushels and Brazil 646,000 bushels. The Soviet Republics reported a production of 901,599,000 bushels for 1926, an increase of nearly 25,000,000 bushels over the yield in 1925. The rye acreage of the reporting countries in 1927 was only 1.4 per cent above that of the preceding year and practically the same as the average for the five years 1921–25. The Canadian production in 1927 was placed at 16,071,000 bushels, which was nearly one-third more than was harvested in 1926.

The United States in 1927, as reported by the Department of Agriculture, produced 58,572,000 bushels on 3,670,000 acres, or at the rate of 16 bushels per acre. In 1926 the corresponding figures were 40,795,000 bushels, 3,578,000 acres, and 11.4 bushels. The average farm price on Dec. 1, 1927, was 85.3c. per bushel as compared with 83.4c. the year before, and at these prices the total value of the crop was $49,945,000 and $34,024,000 for the two years respectively. The large crop of 1927 was marketed quite rapidly at prices slightly higher than in recent years. Up to the middle of September nearly 10,000,000 bushels had been received at the principal markets, as against about 5,000,000 bushels for the same period in 1926, and about 6,000,000 bushels in 1925. Of the thirty-five states reporting the following led in production: North Dakota, producing nearly 40 per cent of the total crop, 23,063,000 bushels, Minnesota 7,485,000 bushels, Nebraska 4,110,000 bushels, Wisconsin 4,046,000 bushels, and South Dakota 2,772,000 bushels. The average farm price on Dec. 1, 1927, ranged from 69c. per bushel in Wyoming to $1.75 per bushel in South Carolina. In thirteen states, mostly eastern and southern, this price was over a dollar. For the year 1927, the United States exported 35,941,115 bushels of rye and 38,400 barrels of rye flour, as compared with 11,940,984 bushels of grain and 15,667 barrels of flour for the preceding year.

SAAR BASIN, zär. According to Article 45 of the Treaty of Versailles, this section of Germany was awarded to France for the purpose of exclusive exploitation of the coal fields, in compensation for the destruction of the coal fields in northern France by the German armies. The treaty provided that for 15 years the Saar Basin should be governed by a commission of five appointed by the League of Nations, and that after that period the population should decide on one of three courses; namely, the administration set up by the treaty, union with France, or union with Germany. Area, 751 square miles; population, about 657,870.

SACCO-VANZETTI CASE. A murder prosecution extending over seven years and resulting in the execution by the State of Massachusetts, Aug. 23, 1927, of the two defendants, Nicola Sacco and Bartolomeo Vanzetti, in the face of protests from many parts of the world. The protests, among the most widespread ever made against a criminal proceeding, rested on belief that the defendants, on account of their known radical affiliations, had failed to receive their full legal rights to a fair trial.

At South Braintree, Mass., Frederick A. Parmenter, paymaster of the Slater & Morrill shoe factory, and Alessandro Berardelli, a guard accompanying him, were murdered on Apr. 15, 1920, and robbed while conveying cash to the amount of $15,776. On May 5, three Italians, seeking to remove an automobile owned by one of them from a garage at West Bridgewater, Mass., aroused suspicion, and two of them, proceeding later to Brockton by trolley car, were arrested while on their way to conduct an anti-capitalist meeting among some workers there. These two men were Sacco and Vanzetti, both natives of Italy, who had emigrated to the United States in 1908. Sacco was a shoe worker and Vanzetti a fish peddler and worker at odd jobs. Previous to the South Braintree murder there had been an attempt at robbery of a pay truck at Bridgewater, on Dec. 24, 1919. As a participant in the Bridgewater crime, Vanzetti was brought to trial at Plymouth, Mass., identified by several witnesses, convicted Aug. 16, 1920, and sentenced to prison for from 12 to 15 years by Judge Webster Thayer.

Sacco and Vanzetti together were indicted, Sept. 11, 1920, for the South Braintree murders. Fred H. Moore, a lawyer with extensive experience in the defense of criminal cases involving labor agitators, undertook to act as counsel for the indicted men. A Sacco-Vanzetti Defense Committee was formed, and enlisted the sympathy of liberal and labor publications at home and Socialist and anarchist journals in Europe and South America. The trial, originally set to open Feb. 5, 1921, at Dedham, before Judge Thayer, was postponed at the request of the defense, to May 31, 1921. Vanzetti was identified by two witnesses as one of the men in the robbers' automobile. In his own testimony he told of selling fish to persons at Plymouth on the day that the murder occurred at South Braintree. Eleven witnesses supported his testimony on this point. The prosecution maintained that a pistol later found on Vanzetti was identical with the one that Berardelli, the murdered guard, had carried. Two women workers at the Slater & Morrill shoe factory identified Sacco as one of the men whom they had seen escaping in an automobile immediately after the murder, at a distance of 60 to 80 feet. Louis Pelzer, a shoe cutter at the factory, and others likewise identified him.

A captain of State police rendered his opinion that the bullet which had killed one of the victims had come from a Colt automatic revolver carried by Sacco, but gave this opinion in qualified and somewhat ambiguous words. Sacco in his own defense related his passing the entire day of the murder elsewhere than on the scene, and ten witnesses supported his alibi. Against both men the prosecution testimony alleged that they had lied about their movements when arrested, and this the defendants explained on the score of a wish to protect companions from what they supposed to be an anti-radical move of the authorities. There was much reference in the course of the trial to the radical views and activities of the defendants, but the State later alleged that the defense had itself first introduced this topic, asserting that the men were being attacked for their political beliefs. The jury after five hours of deliberation, July 14, 1921, found both defendants guilty of the murder of Parmenter and Berardelli.

The verdict was received with great bitterness by Socialists and other radicals in foreign countries. In October, 1921, an attempt was made to bomb the American Embassy at Paris, a hand grenade was thrown when the police in that city raided a protest meeting, and threats were made against the United States Legation at Havana. Motion was brought before Judge Thayer at Dedham for a new trial, and this motion he denied December 24. In the following month, however, he granted an extension of time for the defense to file a bill of exceptions, and in September, 1922, the defense filed a motion for another trial, it being advanced that one of the identifiers of Sacco had repudiated testimony rendered at the original trial. Subsequent progress of the case was much delayed by the illness of Judge Thayer, who was obliged to go to a hospital for treatment in October, 1924, after denying motions brought by the defense. Among these motions was one based on a 93-page brief containing the findings of a microscopist, Albert H. Hamilton, to the effect that micro-photographs showed disparities rendering it impossible that the bullet that killed Berardelli could have come from the pistol carried by Sacco.

The case was further complicated when Celestino Madeiros, a youth under conviction of the murder of a bank cashier at Wrentham, Mass., met Sacco in Dedham jail, and on Nov. 18, 1925, volunteered a confession to the effect that he had been a participant in the South Braintree crime, and knew that neither Sacco nor Vanzetti had been involved in it. There resulted another motion for a new trial of Sacco and Vanzetti, based on the Madeiros confession and alleged corroborating testimony. Shortly thereafter, two former employees of the Federal Department of Justice made declarations to the effect that this department had been secretly active in seeking evidence against both Sacco and Vanzetti prior to their arrest. From these allegations resulted the contention that the Federal Government had had a part in bringing about the prosecution of the men.

Judge Thayer denied Oct, 24, 1926, the petition based on the Madeiros confession and on the allegations of Federal activity against the defendants. It was pointed out that Madeiros, under the prospect of early execution for another crime, had a motive for assuming the guilt in the South Braintree case, in the prospect that his execution might be delayed in order that he might testify. William G. Thompson of Boston, the attorney who had argued this motion for the defense, carried the case to the State Supreme Judicial Court on a motion of appeal. This court, however, refused an appeal, taking the ground, well established in the law of the State, that the trial judge had the final power to determine the matter of retrial on grounds of fact. On Apr. 9, 1927, Judge Thayer sentenced Sacco and Vanzetti to die in the electric chair in the week of July 10.

The defense now carried the case to Governor Fuller of Massachusetts, as the holder of the power of clemency. He undertook a personal investigation, and appointed on June 1 a committee consisting of President Lowell of Harvard University, President Stratton of the Massachusetts Institute of Technology, and Judge Robert Grant to study the case independently and advise him of its conclusions. Another member of the Harvard faculty, Prof. Felix Frankfurter, shortly before this time published a review of the case from the point of view of an expert in evidence, in which he took the ground that both the identifications of the defendants and the evidence as to their subsequent consciousness of guilt were faulty. Governor Fuller found against the plea for clemency on August 3. In a published decision of some 3000 words he expressed his conclusion that the defendants had received a fair trial, that nothing had developed that would entitle them to a new trial, and that the defendants were actually guilty. He stated that he had questioned Madeiros on his confession and had found him unable to recall the scene and details of the South Braintree murder. His advisory committee, the Governor asserted, had conducted its inquiry independently of his, and had formed conclusions in accord with his own.

Successive stays of execution prolonged the lives of the defendants, while efforts were made by their counsel, without avail, to obtain from the Supreme Judicial Court a writ of habeas corpus and from Judge Thayer a new trial, and, that failing, a revocation of sentence, and, finally, from members of the United States Supreme Court a writ or a stay of execution. Sacco for thirty days conducted a hunger strike, but desisted under threat of forcible feeding. During the days succeeding Governor Fuller's disposal of the clemency plea, bombs were set off in two New York subway stations, a Philadelphia church, the residence of the Mayor of Baltimore and the home of one of the trial jurors. Demonstrations were held in many American and foreign cities, and protests against the execution poured in from organizations abroad. On August 23, Sacco and Vanzetti were put to death in the electric chair in Charlestown prison, and with them Madeiros. Vanzetti uttered from the chair a declaration of innocence.

SAFETY, INDUSTRIAL. See NATIONAL SAFETY COUNCIL.

SAFETY AT SEA. The U. S. Steamboat Inspection Service of the Department of Commerce in its report for the fiscal year ended June 30, 1927, stated that the total number of accidents resulting in loss of lives was 211, a decrease of 103 from the previous year. The total number of lives lost from all causes among passengers and crew was 262, a decrease of 106 from the previous year. Of the losses of lives, 146 were from suicide, accidental drowning and other causes, while the loss of 116 lives was fairly chargeable to accidents, collisions, founderings, etc. During the fiscal year 339,447,152 passengers were carried on steam vessels that were required by law to report the number of passengers carried. Of these 48 were lost, showing that 7,071,813 were carried for each passenger lost.

Detailed statistics included in the report of the Supervising Inspector General, Steamboat Inspection Service, showed that 7050 vessels of all types, having an aggregate tonnage of 12,165,143, were inspected during the fiscal year. Steam vessels accounted for 5563, motor vessels for 1005, while barges made up the remainder. Although the total number of vessels inspected showed a slight decrease compared with the previous fiscal year, the total tonnage increased by more than 250,000. Licenses were issued to 24,161 officers of all grades and 9716 able seamen received certificates. Certificates of efficiency were also issued to 7746 lifeboat men.

There is given below a summary of disasters with heavy loss of life at sea during 1927, as recorded in the daily press:

January 11. The American steamer *John Tracy* was sunk off Cape Cod, Mass., with a loss of 27 lives.

January 25. The Spanish steamer *Retuerto* foundered off the Portuguese coast, and 14 of crew drowned.

February 16. The American steamer *Elkton*, with a crew of 37, in the Pacific Ocean, ceased to be heard from.

February 20. In a severe storm, eight U. S. coast guardsmen were drowned near Provincetown, Mass.; eight of the crew were lost off a schooner, off the coast of New Jersey, in a high sea.

February 25. The Greek steamer *Stenies* struck a rock off Land's End, England, 19 of the crew of 20 being drowned.

March 20. The Cardiff trawler *Muira* ran on the rocks near Bude and eight lives were lost.

May 26. The steamship *Negros* was sunk off the Philippine coast, near Romblon, with native students on board, with the loss of 108 lives.

July 2. Explosives on two junks lying alongside the Shanghai-Nanking Railway wharf at Siskwan blew up, killing more than 100 Chinese.

July 14. The British steamship *Shahzada* sank off the Indian coast; 27 of the crew were drowned.

August 1. An explosion, which did not sink the ship, however, occurred on board the Japanese mine layer, *Tokiwa,* resulting in the loss of 38 lives.

August 24. During night manœuvres in Bungo Channel Straits in the Sea of Japan, 20 miles northeast of Mihonoseki, two collisions occurred in which the Japanese destroyer *Warabi* was sunk in 15 minutes, and the destroyer *Ashi* was crushed by the 6000-ton cruisers *Jintsu* and *Naka,* with a total loss of 129 lives, the destroyers were engaged in a night attack, and the fleet was steaming at full speed with all lights extinguished.

October 25. The Italian liner *Principessa Mafalda,* bound from Genoa to Rio de Janeiro and Buenos Aires, sank about 80 miles southeast of Porto Seguro, Bahia, Brazil. About 325 of the 1258 passengers were drowned. The disaster was due to the breaking of a propeller shaft which, flooding the engine room, let water into the boilers, causing an explosion that tore the vessel open.

October 29. In a collision between the fishing schooner *Avalon,* from Gloucester, Mass., and the Cosulich Line steamship *Presidente Wilson,* off Cape Cod, Mass., 11 of the crew of the former vessel were drowned.

November 3. The steamship *Tahiti,* 7898 tons, of the Union Steamship Company of New Zealand, and a ferry steamer running between the circular quay and Watson's Bay in Sydney Harbor, New South Wales, were in collision, and the ferry steamer sank at once. Over 50 lives were lost despite heroic attempts at rescue.

November 12. The steamship *Tukaram* foundered in a storm off Bombay, India, and 128 persons were drowned. On the same date the steamship *Jayanti,* with 100 aboard, was reported missing.

December 17. The U. S. Navy submarine S-4 sank off Provincetown, Mass., after being rammed by the U. S. Coast Guard destroyer *Paulding.* The submarine carried a crew of 42 men, all of whom were lost despite attempts to raise the boat.

ST. CHRISTOPHER or **ST. KITTS.** See LEEWARD ISLANDS.

ST. HELENA. An island of volcanic origin in the South Atlantic, about 1200 miles from the west coast of Africa, and belonging to Great Britain. Area, 47 square miles; population, according to the census of 1921, 3747; estimated civil population, Dec. 31, 1925, 3747. Capital and seaport, Jamestown. The chief occupation is the fibre industry, and fibre and tow are the principal exports. In 1925 the exports were valued at £47,476 and the imports at £57,805; revenue £21,731, expenditure, £19,567; there is no public debt. A detachment of the Royal Marine Artillery is stationed on the island, which is also a coaling station for the British Navy. Governor in 1927, C. H. Harper.

ST. JOHN'S COLLEGE. A college of liberal arts and sciences at Annapolis, Md.; founded as King William's School in 1696. The enrollment for the autumn term of 1927 was 245, and there were 25 members on the faculty. The college grants the A.B. degree only. Freshmen were given orientation courses in literature and the social sciences. The endowment funds amounted to $151,300, and the yearly income to $140,944.35. The library contained 16,430 volumes. President, Enoch B. Garey, LL.D.

ST. LAWRENCE UNIVERSITY. A coeducational institution of higher education at Canton, N. Y.; founded in 1856. The registration for the autumn term of 1927 was 3431, distributed as follows: College of letters and science, 788; theological school, 27; law school, 2533; school of agriculture, 98. The faculty numbered 124, divided among the several schools as follows: Letters and science, 42, of whom five were additions during the year; theological, 4; law, 32; agriculture, 11; special lecturers, 15. The college endowment fund was $2,304,381, and the income for the year $155,927. The library contained 52,000 volumes. New buildings erected during the year were· Dean Eaton Hall, a dormitory for women, an administration building and a president's house. President, Richard Eddy Sykes, D.D.

ST. LUCIA, lo͞o′shĭ-ȧ. A British insular colony in the Windward group of the West Indies. Area, 233 square miles; population in 1925, 55,099. Castries, the chief port and capital, is a naval base and coaling station. The movement of population in 1925 was: Births, 2113; deaths, 1156; marriages, 255. On Dec. 31, 1925, there were 42 Roman Catholic and 7 Protestant schools, with 8198 pupils enrolled. The chief products are cacao, sugar, lime juice, lime oil, bay oil, honey, hides, logwood, rum, fuel, molasses and syrup. Imports in 1925 were valued at £277,013; exports, at £243,207. Of the imports the largest share came from the United States and of the exports the largest share went to Great Britain. The total shipping in the same year was 1,106,097 tons, of which 890,015 tons were British. Revenue in 1925, £75,555; expenditure, £85,082; public debt, £139,230. The island is under an administrator aided by a nominated executive and a partly nominated and partly elected Legislative Council. Administrator in 1927, Lieut. Col. W. B. Davidson-Houston. In the early summer a disastrous fire swept the city of Castries. The property damage amounted to £215,000, only £70,000 of which was covered by insurance.

ST. PIERRE AND MIQUELON, mē-ke-lôn′. Two small groups of islands belonging to France, close to the southern coast of Newfoundland, and named from their two largest islands. Area of the St. Pierre group, 10 square miles; population in 1921, 3419; area of the Miquelon group, 83 square miles; population in 1921, 499. The islands are rocky and unsuited to agriculture, their main importance being as a centre for the cod-fishing industry. The chief town is St. Pierre, which has regular steamship communication with North Sydney and Halifax. In 1924 the imports totaled 149,075,555 francs; the exports, 142,804,699 francs. The imports consisted chiefly of textiles, salt, wines, foodstuffs, and meat; the exports, cod, dried and fresh, and fish products. The local budget for 1925 was: Revenue, 10,549,610 francs; expenditure, 10,058,735 francs. The islands are under a governor aided by consultative and municipal councils.

ST. THOMAS. See SÃO THOMÉ AND PRINCIPE.

ST. VINCENT. A British insular colony in the Windward group of the West Indies. Area, 150.3 square miles; population in 1925, 48,182. Kingstown, with a population of 3836 in 1921, is the capital. The movement of population in 1925 was: Births, 1946; deaths, 876; marriages, 136. In the same year there were 27 primary schools with an average attendance of 2648. The chief products are arrowroot, sugar, cotton, rum, cacao and spice; cotton (Sea Island) being especially important and regarded as the best grown in the British Empire. In 1925 the imports were valued at £211,907; exports, £232,432; revenue, £62,450; expenditure, £53,190; public debt, £10,290; total shipping, 418,774 tons One-half of the Grenadine islands are under the administration of the island of St. Vincent and the other half under Grenada (q.v.). At the head of the administration is an administrator and colonial secretary, who is aided by a legislative council consisting of official, elected, and nominated members. Administrator in 1927, R. Walter.

SAKHALIN, sä'kȧ-lyēn'. An island off the eastern coast of Siberia, separated from Japan by the narrow Strait of Soya. The portion south of the 50th parallel of N. latitude belongs to Japan; north of that line lies the province of Sakhalin, belonging to Russia. Japanese Sakhalin, or Karafuto (q.v.), has an area of about 13,934 square miles and a population, according to the census of 1925, of 203,504. The area of the Russian province is 14,688 square miles, with a population estimated at 34,000 in 1915. The northern half is covered with forests to the extent of 80 per cent of the entire area. A small portion of the northern area is not fitted for the growth of trees because of the climate. Most of the trees are pines suitable for building lumber, which is transported by rafting.

SALMON, LUCY MAYNARD. American educator, died at Poughkeepsie, N. Y., February 14, She was born at Fulton, N. Y., in 1853 and graduated at the University of Michigan in 1876. From 1876 to 1881 she was principal of the high school at McGregor, Iowa, and from 1883 to 1886, instructor in history at the Indiana State Normal School. During 1886–87 she was fellow in history at Bryn Mawr College, and in 1887 became assistant professor of history at Vassar College, where from 1889 until her death she held the position of professor. In 1889 and 1900 she studied at Paris and Florence, and in 1912 received the degree of L.H.D. from Colgate University. In 1904 she was president of the Association of History Teachers of the Middle States and Maryland. Among her historical works are: *History of the Appointing Power of the President* (1885); *Domestic Service* (historical and statistical study), 1897; *Progress in the Household*, 1906; *The Newspaper and the Historian, The Newspaper and Authority* (companion volumes), 1923.

SALMON, THOMAS WILLIAM. American psychiatrist, was drowned off Westbrook, N. Y., August 13. He was born Jan. 6, 1876, at Lansingburg, N. Y., and graduated at Albany Medical College in 1899. From 1899 to 1903 he engaged in private practice and hospital work at Willard, N. Y., before joining the U. S. Marine Hospital Service (later the U. S. Public Health Service). He served until 1915 in that service. From 1915 to 1921 he was the medical director of the National Committee for Mental Hygiene, as well as a member of the staff of the Rockefeller Foundation. Soon after the United States entered the World War Dr. Salmon was commissioned major in the Medical Corps, U. S. Army, and at once took an active part. He and his associates on the National Committee for Mental Hygiene recommended the exclusion of all mentally and nervously unfit recruits from the army, and through their work and recommendations eliminated between 70,000 and 80,000 such recruits. Later, in France, Dr. Salmon became consultant in neuro-psychiatry with the American Expeditionary Forces, and made possible the control of "shell shock" among the soldiers. Congress awarded the Distinguished Service Medal to him. In 1921 he became professor of psychiatry at Columbia University, and in addition acted as consulting psychiatrist at the Presbyterian Hospital from 1922. He was president of both the American Neurological Association and the American Psychiatrical Association.

SALONIKI INTERNATIONAL FAIR. See EXPOSITIONS.

SALVADOR, säl'vä-dōr'. A Central American republic, situated to the east of Guatemala on the Pacific coast. Capital, San Salvador.

AREA, POPULATION, ETC. The area is estimated at 13,176 square miles; the population on Jan. 1, 1925, was estimated at 1,634,000. The mestizos or mixed races numbered 1,307,200 and the Indians 326,800. San Salvador had a population of 84,315 at the census of 1923. Other large towns with their populations at the same time were: Santa Ana, 72,285; San Miguel, 35,546; Santa Tecla, 27,279; San Vicente, 31,927; and Sonsonate, 16,283. In 1925 there were 57,352 births and 32,870 deaths.

EDUCATION. Education is free and compulsory. The report of the national department of school supervision and administration for 1926 stated that 849 schools were in session during that year, with a total of 1555 teachers, an enrollment of 51,933 students, and an average attendance of 35,063. There were 75 private schools, with an enrollment of 6679 pupils, and 61 municipal schools and seven kindergartens. On July 1, 1927, the National University of Salvador began to function on a new basis of autonomy.

PRODUCTION. The great economic weakness of Salvador is that it is virtually a one-crop country and depends almost entirely for its prosperity on coffee. This defect has been realized by the government and the farmers, and considerable attention has been given to the diversification of crops, careful selection of seeds, scientific methods of farming, and improvement in the breed of domestic animals. The mineral wealth of the country includes gold, silver, copper, iron and mercury.

COMMERCE. In 1926 the coffee crop, the largest in the history of the country, reached a production of approximately 115,000,000 pounds, a condition which was, in a large way, responsible for the $7,752,000 increase in exports in 1926 over 1925. The total foreign trade in 1926 amounted to $41,000,000 and was the greatest in Salvador's history. The foreign trade has grown remarkably, especially in recent years; each year since 1923 it has been more than twice that of 1913, when it was valued at about $16,000,000.

FINANCE. The improvement in financial conditions continued during 1926, when for the third consecutive year a balanced budget was produced, and a surplus of $195,934 went into the treasury. The revenues amounted to 22,314,798 colones and the expenditures to 21,922,930 colones. The budget law for 1927–28 gave the total revenues as 21,851,188 colones and the total expenditures as 21,827,625 colones, leaving a surplus of 25,563 colones.

COMMUNICATIONS. In 1925, 659 steamers of 1,228,507 tons entered at the ports of the republic. Three companies were operating railways in Salvador during 1926, the International Railways of Central America (American), the Salvador Railway Company, Ltd. (British), and the San Salvador and Santa Tecla Railway (Salvadorean). The last mentioned is a small suburban line of steam trains with 8 miles of track. All these lines prospered, and the number of passengers and the amount of trade showed a good gain. The International Railways of Central America is the most important railway in the country, and at the end of 1926 it had a line traversing the country from the port of La Union near Honduras almost to the Guatemalan border. This company carried on active construction of extensions during the year, and the completed mileage was increased from 157 miles at the end of 1925 to approximately 250 miles at the end of 1926. On Jan. 17, 1927, Dr. Molina, president of the republic, officially opened the new Soyapango-Texistepeque-Santa Ana section of the International Railways of Central America, which connects the eastern and western sections of the country. The Salvador Railway Co., Ltd. had 90 miles of line connecting the port of Acajutla with the capital, and Sitio del Niño with Santa Ana, at the close of 1926.

GOVERNMENT. Under the constitution, executive power is vested in a president elected for four years, who acts through a ministry of four members; and legislative power in a congress of 42 members elected for one year by universal suffrage. President, Dr. Pío Romero Bosque, inaugurated Mar. 1, 1927, for a term of four years.

HISTORY. As a result of the elections held Jan. 9, Dr. Pío Romero Bosque was elected to the presidency to succeed Dr. Alfonso Q. Molina. Dr. Bosque was born in 1863 and studied law at the National University of Salvador, receiving the degree of doctor of laws in 1889. Entering soon thereafter on his twofold career as jurist and statesman, Dr. Bosque early began to hold important public offices, especially in the judiciary, where, after occupying for years the position of associate justice, he became the chief justice of the supreme court. He has also served as a member of the National Assembly, Minister of Promotion, Industries and Public Education, from 1903 to 1907, Minister of War and Marine from 1919, until his election as President, and Vice President of the Republic for the 1923—27 term.

SALVATION ARMY. An international organization with headquarters in London, whose sole purpose is the "salvation of mankind from all forms of spiritual, moral, and temporal distress." The movement was first organized as a mission in the East End of London in 1865 by William Booth, a minister of the English "New Connection Methodists." It spread rapidly throughout England and in 1880, as the Salvation Army, was extended to the United States. Incorporation took place in New York in 1899.

The organization of its government is military in character, and in 1927 it was under the command of General Bramwell Booth, eldest son of the founder, with the international headquarters in London. The higher command is divided into territories, each territory generally being a separate country or colony, with its own organization under the direction of a commissioner, each local corps or post being under the command of a captain and a lieutenant. The United States is divided into four territories, with headquarters in New York, Chicago, San Francisco and Atlanta, the last named having been organized during 1926. Each territory maintains a training college for men and women at its headquarters and issues two weekly periodicals, the *War Cry* and the *Young Soldier*.

In 1927 there were 4614 officers and cadets giving full time; 22,441 local officers and bandsmen filling honorary positions; and 1655 corps and outposts in operation; 15 hospitals and dispensaries were conducted by the Army, which rendered service to 56,786 patients. Other institutions included 106 industrial homes with accommodation for 3401 men; 97 free employment bureaus; 9 children's homes; 33 women's homes and maternity hospitals, accommodating 2121 women; 79 hotels and 12 women's boarding homes. Converts during 1926 totaled 112,041. The Army conducted extensive welfare work for children at many institutions throughout the United States, particularly at the Lytton Springs Orphanage and Industrial Farm in California, and made great progress in the establishment of boys' clubs, troops of life-saving Scouts of the World and Girl Guards. Valuable work was conducted by Army workers in the prisons, 20,742 prisoners being assisted upon discharge, and 691 paroled to the Army. The following statistics indicate the general nature and scope of the relief work carried on: Christmas dinners, 389,162; persons afforded temporary relief outside industrial homes and hotels, 2,118,042; mothers given summer outings, 9649; children given summer outings, 46,982; pounds of ice distributed, 187,101; pounds of coal distributed, 4,002,633; employment found for 119,118 men and 35,764 women; indoor meetings held during the year, 519,617; open-air gatherings, 205,321. Similar activities were carried on by the Salvation Army in 82 countries and colonies.

The national headquarters of the Army is at 122 West 14th Street, New York, and Commander Evangeline Booth, daughter of the founder, General William Booth, is the national leader. The American territorial commissioners for 1927 were: Richard E. Holz (Eastern), John McMillan (Central), Adam Gifford (Western), and William McIntyre (Southern).

SALZBURG. A province of the Austrian republic; before the war a crownland of the Austro-Hungarian Empire. Area, 2762 square miles; population, according to the census of 1923, 223,023. Capital, Salzburg, with a population in 1923 of 37,856.

SAMARIA. See ARCHÆOLOGY.

SAMOA. A group of 14 islands in the Pacific Ocean, between 13° and 15° S. latitude and 168° and 173° W. longitude, about 2000 miles south of Hawaii and 4000 miles southwest of San Francisco. Since Feb. 13, 1900, the islands east of 171° W. longitude have belonged to the United States; and the islands west of that line belonged to Germany until the outbreak of the war in 1914, when they were occupied by the British and later turned over to New Zealand for administration, under a mandate of the League of Nations.

The official name applied to the former German Samoan Islands is Western Samoa. This territory includes Savaii and Upolu, two of the largest islands, and Apolina and Manono. Area of Savaii, about 660 square miles; Upolu, 550 to 600 square miles. The principal port is Apia, on the island of Upolu. Population, Dec. 31, 1925, 40,229, of whom 2498 were Europeans and half-castes, and 888 coolie laborers. About 13,000 pupils are instructed in schools conducted by the government and various missionary groups. The products include copra (the chief product), cacao, rubber, sugar, and cardamoms. The imports for 1925 were valued at £345,989; exports £379,388. The principal source of imports was Australia and the chief destination of exports was Great Britain. In the same year 88 vessels of 88,137 tons entered and cleared at the port of Apia. The revenue collected for the year ended Mar. 31, 1926, was £150,038; expenditure, £145,687. The general control of the islands is under the New Zealand ministry, and the local government is under an administrator. Administrator, Maj. Gen. Sir George Richardson.

Tutuila, Tau, and the Manua group comprise the American Samoan group of islands. The total area of the islands is about 60 square miles; and the population, according to the census of 1926, is 6616. The principal port is Pago-Pago, at the extreme end of the bay of the same name on the island of Tutuila, the best and safest harbor in the South Seas. The soil is very fertile. There is an abundance of copra, which is the only article exported, and a variety of fruits, including oranges, limes, bananas, mangoes, and alligator pears. The United States Navy has established a high-powered radio station on the island of Tutuila, which is in daily communication with the islands of the Pacific and the United States. The government is in the hands of the Governor of the United States Naval Station at Pago-Pago. The islands are divided into three general administrative districts, corresponding to the former political divisions of Samoa, each administered by a native governor who is appointed by the governor of all the islands. At the head of each village is a chief, elected annually, subject to the Governor's approval. Governor at the beginning of the year, Capt. E. S. Kellogg, U. S. N.

SAMOS. An island in the Ægean Sea, belonging to Greece. Area, about 181 square miles; population, according to the census of 1920 and that of the refugees made in 1923, 84,294. Capital, Vathy, with a population of 12,472. The island was acquired from Turkey as a result of the Balkan War of 1912–13.

SAMUEL, Marcus. See Bearsted, Viscount.

SÄNGERFESTS. See Music.

SANITATION. See Garbage and Refuse Disposal; Sewerage and Sewage Treatment; Water-Works and Purification.

SAN MARINO, mȧ-rē′nō. A republic of Europe, located in the peninsula of Italy. Area, 38 square miles; population, in December, 1925, 12,952. The chief exports are wine, cattle, and the building stone quarried on Mount Titano. The revenue and expenditure for 1925–26 balanced at 4,529,296 lire. There is no public debt. Politically and economically San Marino is closely allied with Italy.

SANSKRIT. See Philology, Modern.

SANTO DOMINGO. See Dominican Republic.

SÃO THOMÉ, soun tō-mā′, **AND PRINCIPE,** prēn′thē-pā. Two islands in the Gulf of Guinea, about 125 miles from the coast of Africa, and belonging to Portugal. Area, 360 square miles; population, according to latest available statistics, 58,907 for São Thomé and 4938 for Principe. The islands are hilly, with volcanic soil, but the land is fertile and the products are varied. Cacao, cinchona, coffee, and rubber are the chief exports. The revenue and expenditure for 1926–27 balanced at 10,213,658 escudos. Imports for 1925 were 31,195,326 escudos, and exports 68,513,874 escudos.

SARATOGA, Battle of. See Celebrations.

SARAWAK, sä-rä′wäk. An independent state, comprising the northwestern part of the island of Borneo, under the protection of Great Britain. Area, about 42,000 square miles (coast line 400 miles). Population estimated at about 600,000, made up of Malays, Dyaks, Kayans, other Polynesian tribes, Chinese, etc. Kuching is the capital, with a population of about 25,000. There are large resources of coal, and recently an oil field has been opened up in the Baram region. The chief exports are petroleum products, plantation rubber, and sago flour. The imports in 1925 were valued at $21,072,884; exports $56,011,036. The trade is chiefly with Singapore. The revenue in 1925 was £594,368; expenditure, £455,012. There is no public debt. The administration of the region was acquired by Sir James Brooke in 1842 from the Sultan of Brunei; it was governed by him under British protection. On his death in 1917 he was succeeded by his son, Sir Charles Vyner Brooke, who is the present rajah. British supervision is exercised by the British agent for Sarawak and British North Borneo.

SARGENT, Walter. American artist and educator, died September 19 at North Scituate, Mass. He was born May 7, 1868, at Worcester, Mass., and studied art at the Massachusetts Normal Art School in Boston, and at the academies of Colarossi and Delecluse in Paris, and was a special student at Harvard. From 1903 to 1909 he was state supervisor of drawing in Massachusetts and director of drawing and manual training in Boston, and from 1909 until 1924 professor of art education at the University of Chicago, serving as chairman of the department of art after 1924. In June, 1927, he was given the degree of Doctor of Arts by Boston University. He was the author of *Fine and Industrial Arts in Elementary Schools* (1912); *How Children Learn to Draw* (1916); *Art Education in the United States* (1918); and *The Enjoyment and Use of Color* (1923).

SARS, särs, Georg Ossian. Norwegian zoologist, died April 10 at Oslo, Norway. He was born in Kinn, Norway, in 1837, and was educated at Bergen and at Christiania University, devoting himself to the study of medicine and zoölogy. From 1864 to 1893, he was employed by his government in an investigation of the cod fisheries and Lofoten fisheries. He was made professor of zoölogy at Christiania University in 1874. His contributions to the science of zoology included modern methods for the study of the biology of the ocean, and more than 100 publications on crustacea, mollusca, cod, and whales, for which he also drew the illustrations. His outstanding contribution to the literature of zoölogy, was *An Account of the Crustacea of Norway,* in six volumes.

SARTAIN, Emily. American etcher and portrait painter, died June 18 at Philadelphia, Pa. She was born at Philadelphia in 1841, the daughter of John Sartain, noted engraver, from whom she received her early training. She continued her studies at the Pennsylvania Academy of Fine Arts, 1864–70, under Schüssele, and then went to Italy, and to Paris where she studied with Luminais, 1871–75. Frequent exhibitions of her oil paintings were held, notably those at Paris in 1875 and 1883, and in 1881 and 1883 she was awarded the Mary Smith prize of the Pennsylvania Academy for the best painting by a woman. In 1886 she became principal of the Philadelphia School of Design for Women, and in 1919 became principal emeritus.

SASKATCHEWAN. A prairie province of Canada, situated between Alberta on the west and Manitoba on the east, extending northward from Montana and North Dakota to the Northwest Territories. Area, 251,700 square miles; population, according to the census of 1926, 821,042, a gain of 63,532 over 1921. Capital, Regina, with a population in 1926 of 37,329. Other cities are: Saskatoon, 31,234, a gain of 25 per cent over 1921; Moosejaw, 19,039; Prince Albert, 7873. Of the total population in 1921, 538,552 were living in rural communities. In 1925 there were 189,050 pupils and 6054 teachers in the 4679 public elementary schools, and 17,545 pupils in the secondary schools. The total area under cultivation in 1926 was 20,419,175 acres, and the value of agricultural products was $320,922,000. The acreage and estimated yield of the principal crops in 1926 was as follows: Wheat, 13,277,858 acres, 208,462,000 bushels; oats, 4,694,134 acres, 136,599,000 bushels; barley, 1,030,398 acres, 25,451,000 bushels; rye, 291,736 acres, 4,919,000 bushels; flax, 597,982 acres, 4,784,000 bushels; mixed grains, 30,400 acres, 866,000 bushels; other grains, 2500 acres, 41,000 bushels; potatoes, 44,600 acres, 3,015,000 cwt.; roots, 4900 acres, 463,000 cwt.; hay and clover, 407,000 acres, 606,000 tons; fodder corn, 53,600 acres, 226,000 tons. Total exports in 1925–26 amounted to $10,169,324; total imports to $14,898,870. In 1925 there were 7031 miles of steam railway in operation. The government is under a lieutenant-governor appointed by the governor-general of the Dominion of Canada, and a legislative assembly of 63 members elected for five years by universal suffrage. Women not only have the right to vote but are eligible for seats in the legislature. Lieutenant-governor, H. W. Newlands; premier, treasurer, and minister of railways, J. G. Gardiner; public works, A. P. McNab; education, S. J. Latta; agriculture, C. M. Hamilton; attorney-general, J. A. Cross; highways, labor and industries, T. C. Davis; secretary and public health, J. M. Uhrich.

SATELLITES. See Astronomy.

SAULSBURY, Willard. American politician and former United States Senator from Delaware, died February 20, at Wilmington, Del. Born at Georgetown, Del., Apr. 17, 1861, he was educated in private schools and at the University of Virginia, after which he studied law with his father in Dover and in 1882 entered the law office of Victor du Pont, with whom he was associated until 1888. He was unsuccessful as a candidate for the United States Senatorial nomination on the Democratic ticket in 1897. He was chairman of the Democratic State Committee from 1897 until 1906. He was elected United States Senator in 1912 for the term of 1913–19, during the last two years of which he was president pro tempore of the Senate. A candidate for the Senate again in 1918, he was defeated by Louis Heisler Ball. Republican, and resumed his law practice at Washington and Wilmington.

SAULT STE. MARIE, Canals at. In 1927, 18,759 vessels passed through the United States and the Canadian canals at Sault Ste. Marie, Michigan and Ontario, having a total registered tonnage of 64,325,362 tons, as compared with 20,898 vessels of 71,290,862 tonnage in 1926. Through the United States canal there were 15,520 vessel passages with a registered tonnage of 59,843,101, and through the Canadian canal 3239 passages with a tonnage of 4,482,261. The number of passengers carried through the canals showed an increase of 5 per cent in 1927 over the 1926 figures, the totals for the two years being 55,115 and 52,704 respectively. The total freight passing through the canals aggregated 83,354,064 short tons, of which 64,392,752 tons were east-bound and 18,961,312 west-bound. Iron ore to the amount of 49,963,131 tons, carried through the United States canal, or 13 per cent less than the tonnage in 1926, was the leading item of freight east-bound. Other principal items east-bound were 320,303,925 bushels of wheat carried through the United States canal and 10,594,233 bushels through the Canadian canal, making a total of 330,898,158 bushels, or an increase of 22 per cent over 1926; 110,588,091 bushels of other grain through the United States canal and 8,931,458 through the Canadian canal, a total of 119,519,549 bushels, or an increase of 19 per cent over the previous year; and 5,260,420 barrels of flour through the American canal and 4,123,020 barrels through the Canadian, or a total of 9,383,440 barrels. The two leading items in west-bound cargoes were 15,953,959 short tons of soft coal, an increase of 23 per cent over 1926, and 1,153,541 tons of hard coal, a decrease of 22 per cent from 1926. These items were followed by 708,068 short tons of merchandise, of which 356,618 were carried via the United States canal and 351,450 via the Canadian canal; stone, 574,829 short tons, through the United States canal, an increase of 13 per cent, and 251,265 tons of oil, through the United States canal.

The United States canal was opened April 13 and closed December 16, while the Canadian canal was opened April 12 and closed December 18, making the season 248 days and 251 days, respectively.

SAVAGE, Henry Wilson. American operatic and theatrical producer, died at Boston, November 29. He was born at New Durham, N. H., Mar. 21, 1859. After graduation at Harvard in 1880 he became a real estate operator, and he had attained notable success in this field when chance made him an impresario. In 1894 he had built the Castle Square Theatre in Boston, and after one lessee after another had gone into bankruptcy, Mr. Savage organized the Castle Square Opera Company for the production of grand opera in English at popular prices. The very first season, 1897, was successful; the company was increased, the repertory was enlarged and other cities were visited. In the fall of 1900 the company gave a short season in English at the Metropolitan Opera House, New

York, before the opening of the regular Metropolitan season. In 1904 he organized a special company and produced *Parsifal* in English, with immense success, in the principal cities of the East and Middle West. In 1906–07 the same company toured the United States with Puccini's *Madame Butterfly*, and in 1911–12 with Puccini's *The Girl of the Golden West.* Besides these companies, Mr. Savage maintained a separate organization for the production of light opera. Among the many delightful musical comedies introduced by this company were *The Merry Widow* and *The Prince of Pilsen,* which achieved phenomenal success.

SAVINGS BANKS. See Banks and Banking.

SAXONY. The name Saxony is applied to three divisions of the former German Empire; the Republic of Saxony (formerly the Kingdom of Saxony); the former Grand Duchy of Saxony (now a part of Thuringia); and the Province of Saxony in Prussia.

Republic of Saxony. The third largest state of the German republic: proclaimed a republic on Nov. 9, 1918. Area, 5787 square miles; population, according to the census of 1925, 4,992,320. The capital, Dresden, had a population in 1925 of 619,157. The largest city is Leipzig, with a population of 679,159. The other cities with over 100,000 in 1925 were Chemnitz, 333,851, and Plauen, 111,436. In 1925 the movement of population was: Births, 91,979; deaths, 52,664; marriages, 40,489. The latest available school statistics showed 3547 common and continuation schools with a total attendance of 833,269 pupils. In proportion to its size, Saxony is the leading state in German industry, and rivals the chief industrial provinces of Prussia. In 1925 the area under cultivation was 2,321,531 acres. The area under the principal crops with their yields in metric tons was: Wheat, 173,267 acres, 200,870 tons; rye, 435,431 acres, 390,630 tons: barley, 73,138 acres, 71,182 tons; oats, 381,422 acres, 334,353 tons; potatoes, 253,486 acres, 1,839,878 tons; meadow, 451,025 acres, 696,951 tons of hay. The livestock census taken at the end of the same year showed 171,878 horses, 697,617 cattle, 618,107 pigs, 233,757 goats, and 85,943 sheep. The chief industry is textile manufacturing, but mining and metal-working are also of importance. In 1925, 3,869,244 tons of coal and 9,918,876 tons of lignite were produced, the combined value being 101,156,000 gold marks. The ordinary budget for 1926–27 balanced at £17,275,471 and the extraordinary budget at £3,660,744. The constitution of the republic is dated Oct. 26, 1920. The diet was elected on Oct. 31, 1926, and is composed of the following parties: German Social Democratic party, 31; Saxon Social Democrats, 4; Democrats, 5; German National party, 14; People's party, 12; Communists, 14; Middle Class party, 10; others, 6. Prime Minister (appointed in February, 1924, reëlected Jan. 11, 1927), Herr Heldt, of the Socialist party.

Grand Duchy of Saxony or Saxe-Weimar. A former constituent state of the German Empire; proclaimed a republic in November, 1918, but united at the end of that year with Thuringia (q.v.). Area, 1397 square miles; population in 1919, 433,959.

Saxony in Prussia. A province of Prussia. Area, 9758 square miles; population in 1925, 3,272,145.

SAZANOFF, Sergius Dmitrievitch. Russian statesman and diplomat, died at Nice, France, December 23. He was born in the province of Ryazan, Russia, July 29, 1866, and, after receiving his education at the Alexandrovsky Lycée, entered the diplomatic service. Much of the early part of his career was spent in Rome, but he served in London from 1890 to 1894 as second secretary of the Russian Embassy, and again in 1904 and 1905 as its counsellor. Here, as assistant to Count Benckendorff and as chargé d'affaires in the absence of the latter, he rendered valuable service in handling the Dogger Bank incident of 1904. His next post was as Russian minister at the Vatican, after which he returned to St. Petersburg, in 1909, to serve first as undersecretary at the foreign office and then as foreign minister, from 1910. He persuaded Czar Nicholas II to mobilize the army in 1914, and was a loyal supporter of the entente cause throughout the War. He was forced by ill health to resign from his position as foreign minister in 1916. He was appointed ambassador to England in January, 1917, but was recalled on the eve of his departure for London, just prior to the overthrow of the Czar. In the same year he became foreign minister of the counter-revolutionary Omsk government, following the October revolution. After the Bolshevist coup d'état (Nov. 6–7, 1917) he escaped from Russia and was at the Peace Conference in Paris, where, as at Geneva, he opposed recognition of the Bolsheviki. As Kolchak's chief representative abroad, with the rank of minister of foreign affairs, he was unsuccessful in winning recognition for Russia in England, and after failing in other negotiations he retired to private life in 1920. In retaliation for his royalist sympathies and opposition to the Bolsheviki he was accused, while in exile in France, of having blamed France, as Russia's ally, for having started the War, and he was also accused of having been instrumental himself in starting the War, charges which he denied, in his memoirs.

SCABIES IN SHEEP AND CATTLE. See Veterinary Medicine.

SCALE. See Entomology, Economic.

SCANDINAVIAN LITERATURE. In this review, covering the year 1927, there are included also the late books of 1926. It is divided, as usual, into Danish, Norwegian and Swedish literature.

Danish. *Drama.* Much to the surprise of the critics, who had pronounced it poorly adapted for acting, Johannes Heskjær's tragedy *Kristine* proved a complete success on the stage. It is in many ways similar to the plays of Shakespeare and of Maeterlinck. In *Konglofret* (*The Royal Sacrifice*), which centres around the sad life of the Danish king Hrolf Helgesön, Valdemar Rördam shows great lyrical power.

Poetry. Johannes V. Jensen wrote *Verdens Lys* (*The Light of the World*), a collection of poems which make a universal appeal and have several of the qualities of the old Danish classics. In *Bölger i Blæst* (*Waves in the Storm*), Kai Hoffmann once more expresses his love of nature in general and especially of Spring. Per Lange proves himself a master of diction as well as a man of deep feeling, in *Kaos og Stjernen* (*Chaos and the Star*).

Fiction. The Icelander Gunnar Gunnarsson continued the story of Uggi Greipsson, who is really Gunnarsson himself, in *Den unerfarne Rejsende* (*The Inexperienced Traveler*). In *Sokongen* (*King of the Sea*), a story written in true epic style, Harry Soiberg again clearly interprets the life and the psychology of primitive people. *Lukkens Omnibus* (*Fortune's Omnibus*) proves Otto Rung a thorough master of external description, although he does not allow the reader to look closely into the inner life of his characters. The tragic outcome in Henrik Pontoppidan's *Mans Himmerig* (*Man's Heaven*), which is ironically named, is brought about by the fact that the hero, in whose heart the love for wife and the love for an ideal contend for victory, ends by being faithless to both. *Kærlighedens Jaarstider* (*Love's Seasons*), by Agnes Henninger, is the story of a woman who is led astray by her constant desire for new experiences. The book is really a series of well executed pictures. Knud Andersen's *Brænding* (*Breakers*) is a good portrayal of the seaman's restlessness and his love for the sea. Johannes V. Jensen this year left his monumental historical novels to give us a rather disconnected but sober every-day tragedy from the peasant class in his story, *Jorgine*. Johannes Buchholtz's *Gudrun og Simon* (*Gudrun and Simon*) does not have the brilliancy of his earlier works, but shows more maturity and a firmer technic.

Science, Literature, etc. By the death of Georg Brandes (q.v.), Denmark lost its greatest critic. Among critical works of the year may be mentioned Paul V. Rubow's *H. C. Andersens Eventyr* (*The Tales of H. C. Andersen*), which is a valuable contribution to Andersen literature; and Valdemar Vedel's *Corneilles og hans Samtid* (*Corneille and his Times*), which gives a clear estimate of Corneille's position and importance in the development of the French drama. In *Dansk Sprog* (*Danish Language*), Lis Jacobsen gives some of the results of her researches, which cover a large field of Danish philology. In the field of religion, Helge Rode's *Det store Ja* (*The Great Affirmative*) is an attack on skepticism. Harald Höffding's *Religiöse Tanketyper* (*Types of Religious Thought*) deals with the religious conceptions of different ages as exemplified in representative writers.

NORWEGIAN. *Poetry. In his Hamar i Hellom* (*Cliff Among the Rocks*), Olav Ankrust displays a desire to revive the love for Norwegian heritage in cultural and spiritual matters. Gunnar Reiss-Andersen's *Kungesönnens bryllup* (*The Prince's Wedding*), while melodic and artistically excellent, is in many respects below the regular standard of the author.

Fiction. Johan Bojer's *Det nye tempel* is a sequel to *Den store hunger*. Although in the earlier volume the author considered the individual as the important factor in religion, he now looks to the church as the important factor. In *Straumen og evja* (*Currents and Countercurrents*), Olav Dunn turns from the old days of *Juvikingerne* to ultra-modern times. Axel Krogh's *Jomfruens hjerte* (*The Maiden's Heart*) is a sequel to *Foged Carolius*. In his portrayal of the girl who is unable to become attached to any man, Krogh shows remarkable power to catch and reproduce various fleeting moods. In *Min barndoms have* (*My Childhood's Sea*), Vilhelm Krag gives an idyllic description of his childhood in Kristiansand. Mikkjel Fönhus's *Reinbukken på Jotunfjell* (*The Reindeer on the Jotun Mountain*), written in a language strongly colored by dialect and yet clear, is characterized by primitive but colorful descriptions of nature and animal life.

Of special interest to English readers is the translation of Rölvaag's *I de dage* and its sequel *Riket grundlægges* (mentioned in this article in the YEAR BOOKS for 1925 and 1926) under the title *Giants in the Earth*. The reception accorded this translation makes it an important contribution to American literature. Knut Hamsun's *Landstrykere* (*Tramps*), touching, as it does, the problem whether it is better to remain in the home country where there is little or no land, or to emigrate, expresses Hamsun's usual restlessness. This work has been translated into English and several other languages. Among collections of short stories are the posthumous volume, *Foraret i Micropolis* (*Spring in Micropolis*), by Hans E. Kinck, and *Gnister fra peisen* (*Sparks from the Fireplace*) by Kristian Elster.

Literary Criticism. The volume, *Bernard Shaw og hans verker* (*Bernard Shaw and His Works*), contains numerous facts about the Irish playwright as well as copious quotations from his works. Arnulf Overland's *Olav Dunn* shows one artist's appreciation of another rather than a scientist's objective evaluation. In Sigurd Hösts *Ibsens diktning* (*Ibsen's Works*), the treatment of the Bergen period is specially good.

SWEDISH. *Poetry.* Pär Lagerkvist's *Hjartats sånger* (*Songs of the Heart*) are love lyrics. In *Staden* (*The City*), Sten Selander expresses his love not so much for the city as for the human beings who dwell there. Gunnar Mascoll Silverstolpe's *Vardag* (*Week days*) has running through it the spirit of peacefulness and satisfaction. The "week days" which we see in these poems are more like holidays. In *Mörkret och lågan* (*Darkness and the Flame*), Arvid Mörne gets away somewhat from his older, rather provincial, interpretation of life.

Fiction. Two works portray the present younger generation in a highly favorable light: Gösta Attorp's *Barn av sin tid* (*Children of the Times*) and Gustav Hellström's *Mannen vid ratten* (*The Man at the Wheel*). In *Kerrmans i paradiset* (*The Kerrmans in Paradise*), Hjalmar Bergman gives a romantic glamor to "big business." Elin Wägner's *De fem pärlorna* (*The Five Pearls*) is a story of war and diplomacy, involving even the United States. *In Behalf of the Accused* might be a good title for Marika Stjernstedt's *Resning i målet*. The heroine is a daughter who is driven to suicide by an unjust and unsympathetic father.

History, Literature, etc. In *Nils Rabenius*, Nils Ahnlund published his interesting discovery of the forging of historical documents more than two hundred years ago by the court preacher and favorite of Charles IX. Fredrik Böök wrote a series of interesting articles on living Swedish authors, in his *Resa kring svenska parnassen* (*Journey Around the Swedish Parnassus*). Although Erik Nordeen's *Den norsk-islandska poesien* (*Norwegian-Icelandic Poetry*) is evidently intended for the layman rather than the scholar, it bears the stamp of the scientific investigator. David Marcus's *Knut Hamsun* gives an especially rich account of the Norwegian writer's youth. Martin Lamm, who occupies the foremost place among Strindberg scholars, contributed a second volume of *Strindbergs dramer* (*Strindberg's Plays*). See PHILOLOGY, MODERN.

SCARLET FEVER. The brilliant results of the new scarlet fever antitoxin were best shown in the temperature curves of the patient, where each injection was followed promptly by a temperature fall (if the temperature was above a certain mark). The concentration of serum used and the proper dose may be determined from an analysis of these curves. All other symptoms which are due to the toxin of the disease likewise yield to the antitoxin. But Dr. K. Ochsenius, a child specialist of Chemnitz, Germany, whose article in the *Münchener Medizinische Wochenschrift* for August 12, is here quoted, warned that this antitoxin would not prevent or control the secondary complications of the disease, for these were not due to the action of the toxin but to infections micro-organisms which attack the body in its weakened state. The opinions of experts differed as to the range of use of the antitoxin. In the clinic it may be well to make use of it in routine for all patients, but in private practice it is best to go by the temperature and age of the patients, for in children up to four years old mouth temperatures cannot be taken and rectal temperatures run higher than those of the mouth and axilla. In regard to the efficacy of the antitoxin in chance complications, all pediatricians are not of the opinion of Ochsenius, and some of them hold that a very early injection will prevent the development of such complications.

SCHMIDT, Leopold. German writer on music, died at Berlin, April 30. He was born there, Aug. 2, 1860. While attending the Berlin University he studied music at the Hochschule für Musik. After several engagements as conductor, at Heidelberg, 1887, Berlin, 1888, Zurich, 1891, and Halle, 1895, he devoted himself to writing, and exercised considerable influence as musical critic of the *Berliner Tageblatt,* which post he filled from 1897 until his death. From 1900 to 1912 he was professor of the history of music at Stern's Conservatory, and from then on he held the same position at the Klindworth-Scharwenka Conservatory. His collected essays and reviews were published in two volumes, *Aus dem Musikleben der Gegenwart* (1908) and *Erlebnisse und Betrachtungen* (1913). He also published some chamber music and songs. An operetta, *Die Heimkehr des Odysseus,* with music arranged from unknown operettas of Offenbach, was produced with considerable success at Frankfort in 1913.

SCHOOLS. See Education in the United States.

SCHULTENITE. See Chemistry, under *Mineralogical Chemistry;* Mineralogy.

SCHWARTZBARD, Samuel, Trial of. See Jews.

SCIENCES, National Academy of. See National Academy of Sciences.

SCIENTISTS, Christian. See Christian Scientists.

SCOTLAND. See Great Britain.

SCULPTURE. See Archæology; Art Exhibitions; Art Museums; Art Sales; Painting and Sculpture.

SEAL FISHERIES. See Alaska.

SEAPLANE. See Aëronautics.

SEASICKNESS. While new remedies for seasickness are introduced from time to time, none of them has proved of permanent and universal value, and the medical profession and public have become skeptical on the value of drugs in this condition. However, a German physician and traveler who had made a lifelong study of the subject presented an enthusiastic report on a new modification of an old idea (H. E. Kersten in the *Munchener Medizinische Wochenschrift* for September 16). Atropin has been used to some extent as a palliative in seasickness, upon the theory that the manifestations of the latter are due to irritation of the vagus nerve, this in turn the result of the disturbed function of the organ of equilibrium, the semicircular canals of the internal ear. Atropin possesses the power of paralyzing the vagus for the time being, but has unpleasant collateral and after effects, with the danger of poisoning in susceptible individuals. It was learned that equal parts of atropin and hyoscyamin were superior to atropin alone, and Dr. Kersten made a trial of equal parts of atropin and scopolamin, with the surprising result that in many very seasick patients nausea was immediately relieved, while apparently all those treated derived benefit. In cases where the tablets cannot be swallowed the drugs must be given in suppository. These remedies are entirely too dangerous for self-medication, and must be dispensed by the ship's doctor.

SEISMOLOGY. Several important investigations of the propagation of seismic waves have recently been carried out by Mohorovicic, Jeffreys, Gutenberg, Macelwane and others. Some of these investigators, however, differ considerably among themselves in regard to the internal structure of the earth indicated by the results of their studies. The Japanese have obtained evidence that, in a region about to be visited by an earthquake, an appreciable tilt of the ground takes place several hours before the quake occurs. Through the work of the United States Coast and Geodetic Survey, the Carnegie Institution, Macelwane and others, the United States is coming to occupy a prominent place in seismological investigation.

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SELANGOR. See article on Federated Malay States.

SENEGAL, sĕn′egal′. A colony belonging to France on the west coast of Africa, under the government of French West Africa (q.v.). Total area, 74,112 square miles; population in 1921, estimated at 1,225,523, of whom 4321 were Europeans. Capital, St. Louis, with a population in 1917 of 23,326. Other important towns are: Dakar, the seat of the government-general of West Africa, and a fortified naval station; population, 1918, 25,468, of whom 2791 were French; and Rufisque, population, 11,414.

The estimated area under cultivation has been placed at 307,000 acres. Cotton is cultivated, and a wild variety is also found. The principal source of wealth consists of peanuts, and the value of the export of this commodity is three times that of all other exports taken together. In 1925 the imports were valued at 698,926,705 francs and the exports at 588,921,912 francs.

The local budget for 1926 was 85,801,324 francs. Dakar, Rufisque and St. Louis are connected by a railway 165 miles in length, and during 1926 another stretch was nearly completed between Thiès and Kayes, a distance of 435 miles. The administration is in the hands of a lieutenant-governor, assisted by a council of 40 members, 20 of whom are elected by the French citizens and 20 by representatives of the native chiefs. The colony sends one deputy to the French parliament.

SERAO, MATILDA. Italian author, died in Naples, July 25. She was born of Italian parents at Patros, Greece, in 1856. When she was four she was taken to Naples, where she received her early schooling, and then to Rome. She joined the group of young poets to which Gabrielle d'Annunzio and Scarfoglio belong; she was married to the latter. Her working career covered about half a century and during that time she wrote 30 books, 20 of which were novels. The most widely read of her novels, which have been translated into several European languages, are: *La conquista di Roma; Paese di Cuccagna* and *Addio amore*. She and her husband founded the newspapers, *Corriere di Napoli* and *Il Matino*.

SERBIA. A former Balkan kingdom which was proclaimed in December, 1918, a part of the new Unitary State of the Serbs, Croats, and Slovenes. (See JUGO-SLAVIA.) It is bounded on the east by Bulgaria, on the west by Albania and Montenegro, on the south by Greece, and on the north is separated from Hungary by the Danube and Save Rivers. In the new state Serbia is divided into two provinces, North Serbia, with an area of 19,286 square miles and a population, at the census of 1921, of 2,655,078, and South Serbia, with an area of 17,651 and a population of 1,474,560. The former capital of Serbia, Belgrade, became the capital of Jugo-Slavia, and had a population in 1921 of 111,740.

SESQUI-CENTENNIAL CELEBRATIONS. See CELEBRATIONS.

SETON, THE MOST REV. ROBERT. Roman Catholic prelate, titular archbishop of Heliopolis, Egypt, and dean of all the monsignori in the United States, died March 22 at the College of St. Elizabeth, Convent Station, N. J. He was born of American parents at Pisa, Italy, Aug. 28, 1839, and after studying for three years at St. Mary's College, Maryland, entered the University of Bonn in 1856 and was graduated from the Ecclesiastical Academy at Rome in 1867. He had been made a private chamberlain to Pope Pius IX in 1866. He was made prothonotary apostolic in 1867 and in the same year, returning to the United States, became chaplain of St. Elizabeth's College. In 1876 he became rector of St. Joseph's Church, Jersey City, and continued in this charge until his retirement to live in Rome nearly forty years later. He received the degree of LL.D. from the University of Notre Dame in 1893. In Rome in 1903 he was named titular Archbishop of Heliopolis. He was Roman correspondent of the *New York Times* over the signature "Fyvie." He was the author of *Memoirs, Letters and Journals of Elizabeth Seton* (his grandmother) (1869); *The Dignity of Labor; Roman Essays* (1882); *An Old Family* (1899); and *Memories of Many Years*, an autobiographical work, written after his return to the United States in 1921.

SEVENTH-DAY ADVENTISTS. See ADVENTISTS.

SEVILLE, EXPOSITION AT. See EXPOSITIONS.

SEWERAGE AND SEWAGE TREATMENT. Concrete, plain or reinforced with steel, continued to be used for the larger sizes of main or trunk sewers in the United States, with a choice between vitrified clay pipe and concrete for intermediate sizes, and with the general use of vitrified pipe in smaller sizes, down to the 8-in. laterals which serve single streets where storm water is not removed in the same sewers as convey house sewage. A large percentage of the concrete pipe being used is precast—made in a temporary plant established in the vicinity of the sewers to be laid, then transported to the trench lines, lowered into position and jointed together. Steel reinforcement is employed to strengthen the concrete.

The most extensive additions to sewage-collecting systems in recent years have been in the Borough of Queens, New York City, where some $16,000,000 was paid out for trunk sewers, and at Detroit, where work was in progress to provide sewers for the territory annexed in 1924–25 and also to provide intercepting sewers to bring the sewage of the city to a central point for treatment. (See 1926 YEAR BOOK.)

STREAM POLLUTION. Control of stream pollution by municipal sewage, and to a far less degree by wastes from industrial plants, is vested in State departments of health to a large degree in the Northeast and Middle West and in some of the Pacific Coast States, and to a lesser degree in the other States of the Union. In the absence of Federal control of stream pollution, except in a minor degree and to lessen its deleterious effect upon navigation, there was still comparatively little done to prevent the sewage and other wastes produced in one State from polluting the water of other States in interstate streams. Coöperative working agreements by State departments of health to cope with this condition were increasing.

SEWAGE TREATMENT. The project for a sewage-treatment plant of 180,000,000 gallons' capacity on Ward's Island in the East River, to treat the sewage of parts of the Boroughs of Manhattan and Brooklyn, was approved by the New York City authorities late in the year. The activated-sludge process was proposed. Tunnels beneath the East River, with intercepting sewers in the two boroughs, will be necessary. The project contemplated caring for the sewage of something over 1,000,000 persons, at a total cost of some $15,000,000, including the tunnels and intercepting sewers. Ultimately, sewage from nearly 200,000 persons in Queens Borough might be brought to the site of the proposed sewage-treatment works.

At Chicago, the Sanitary District had under construction an activated-sludge plant for the North Side, designed to treat the sewage from a population of 830,000 at an estimated cost of $17,500,000. This plant was about 90 per cent completed at the close of the year. The excess sludge from the tanks was to be pumped for 18 miles through a 14-in. cast-iron pipe to the West Side sewage-treatment plant, also under construction, where the sludge was to be united for treatment with that of the West Side plant. This plant is of the Imhoff tank type, was planned to serve 1,850,000 persons, and will cost $19,500,000. The entire programme for the construction of sewage works, intercepting sewers, and pumping plants for the Chicago Sanitary District was estimated to cost $155,000,000, of which $61,000,000 had been expended at the close of 1927.

In the suit brought by Wisconsin and other States against Illinois and the Chicago Sanitary District to prevent the diversion of water from Lake Michigan to the Chicago Drainage Canal for the dilution and disposal of the sewage of the district, Charles E. Hughes, acting as special master appointed by the United States Supreme Court, reported near the close of the year findings that were in favor of the Chicago Sanitary District so far as continuation of the diversion and of the present permit is concerned, while at the same time making it clear that lake diversion for the purpose indicated was entirely under the control of the Federal Government, acting through the War Department as authorized by Congress. The Hughes report had to be acted upon by the United States Supreme Court. The portion of the Hughes report dealing with questions of law may be found in *The United States Daily*, beginning Nov. 26, 1927, and abstracted at length in *Engineering News-Record*, Dec. 1, 1927.

BIBLIOGRAPHY. New books were: Martin, *The Activated-Sludge Process* (London), and Temple, *Sewage Works* (London); the latter deals with the subject briefly from the standpoint of the Far East, the author being the chief town engineer of Jamshedpur, India.

SHANTUNG, shän′tōōng′. One of the eighteen provinces of China proper; in dispute between China and Japan after the Treaty of Versailles; returned to China by Japan in accordance with the agreement reached at the Washington Conference of 1921–22. Area, 55,970 square miles; population, estimated at 25,810,000.

SHEEP. See LIVESTOCK; VETERINARY MEDICINE; WOOL.

SHERMAN, CHARLES COLEBROOK. American editor, died at New Rochelle, N. Y., May 8. He was born at Syracuse, N. Y., Dec. 18, 1860, and graduated at Yale College in 1883. He taught in the Hopkins Grammar School at New Haven, Conn., 1883–84, and studied at the Yale Divinity School, 1886–88, and pursued graduate studies at the Universities of Chicago and Berlin. Afterwards he was on the staff of the *Syracuse Journal*. He became religious editor of the NEW INTERNATIONAL ENCYCLOPEDIA in 1902, and subsequently he served as managing editor of the *Schaff-Herzog Religious Encyclopedia* (1903–07).

SHIPBUILDING. In the annual summary of the mercantile shipbuilding of the world for 1927, published by Lloyd's *Register of Shipping*, the total output of the year was placed at 2,285,679 tons, representing an increase of 610,702 tons. Compared with 1913, during which year the pre-war world record output was reached, the 1927 figures showed a decrease of over 1,000,000 tons, as the accompanying tabulation indicates. The *Lloyd's Register* summary does not include warships and takes into account only merchant vessels of 100 tons gross and upwards that were launched in 1927, whether they were completed during the year or were still under construction.

The total launches included 38 vessels of over 336,000 tons which were to be fitted with steam turbines and reciprocating engines. The tonnage of vessels fitted with internal-combustion engines launched during 1927 increased, and amounted to 863,694 tons, as compared with 704,006 tons launched in 1926, and represented 62.8 per cent of the world's output of steam tonnage, as compared with 76 per cent in 1926. The tonnage of motor ships under construction at the end of 1927 was actually 115,000 tons in excess of steam tonnage under construction, demonstrating the progress which was being made by the internal-combustion engines as a means of marine propulsion. Of the total steam tonnage of 1,375,828 tons launched in the world, 470,000 tons were steamers fitted for burning oil fuel under the boilers, so that the tonnage depending exclusively on coal for propulsion amounted to 39.6 per cent of the world's total.

There were 802 vessels launched in the world during the year, of which 19 were over 10,000 tons, 95 between 6000 and 10,000 tons, and 128 between 4000 and 6000 tons. There were five vessels of 20,000 tons and upwards launched, of which the largest was the turbine ship *Cap Arcona*, 27,561 tons, built in Germany; next came the turbine steamship *Conte Grande* of 22,800 tons, built in Italy, followed by the turbo-electric *California* of 22,000 tons, built in the United States, the *Duchess of Atholl*, 21,500 tons, built in Scotland, and the turbine steamship *Orford*, 20,000 tons, built in England. During 1927, 99 tankers, of 542,437 tons, built for the carriage of oil in bulk, were launched, the number given excluding vessels of less than 1000 tons.

The countries where the largest tonnage was recorded during the year were Great Britain and Ireland, with 1,225,873 tons; Germany with 289,622 tons; the United States with 179,218 tons; Holland with 119,790 tons; Italy 101,176 tons; Denmark with 72,038 tons, and Sweden with 67,361 tons, all of these countries with the exception of Denmark and Italy showing a substantial gain over 1926, as is indicated in the accompanying table.

GREAT BRITAIN. The tonnage launched in Great Britain and Ireland, 1,225,873 tons, was 586,305 tons greater than in 1926, but 706,000 tons lower than in 1913, the pre-war record year. However, it reached 53.6 per cent of the world's output for 1927 as compared with 38.2 per cent in 1926. The distribution among the leading shipbuilding centres was as follows: The Clyde, 423,723 tons; the Tyne, 274,056 tons; the Wear, 162,770 tons; the Tees, 130,371 tons; and Belfast, 107,181 tons. There were 86 vessels launched of between 5000 and 10,000 tons each, and seven vessels of 10,000 and upwards, the largest being the turbine steamers *Duchess of Atholl* and *Orford*, and the *Laurentic*, of 18,724 tons, fitted with a combination of steam turbines and reciprocating engines, and the motor ship *Bermuda*, 16,000 tons. Excluding vessels of less than 1000 tons, 62 vessels of 305,781 tons for the carriage of oil in bulk were launched during 1927. There were launched 13 vessels with a total tonnage of 137,628 tons, to be fitted with steam turbines, including one vessel of 18,724 tons, the *Laurentic*, in which ship a combination of steam turbines and reciprocating engines was installed, as stated above. During the year British yards launched 80 motor ships of 355,779 tons, 38 of which were of 5000 tons and upwards, the largest being the *Bermuda* of about 16,000 tons.

THE CHAPEL

MAIN ENTRANCE AND GRAND STAIRCASE

FRENCH LINE STEAMSHIP "ILE DE FRANCE"

TABLE SHOWING THE NUMBER AND GROSS TONNAGE OF MERCHANT VESSELS OF 100 TONS GROSS AND UPWARDS LAUNCHED IN THE VARIOUS COUNTRIES OF THE WORLD DURING THE YEARS 1913–1927

Year	*Austria Hungary*		*Belgium*		*British Dominions Coasts*		*British Dominions Canadian Lake Ports*		*Denmark*		*France*	
	No.	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No.*	*Tons*
1913	17	61,757	54	30,181	77	26,744	14	21,595	31	40,932	89	176,095
1914	11	34,335[a]	8	17,145	58	22,288	22	25,246	25	32,815	38	114,052
1915	..	[a]	No Returns		27	13,289	4	8,725	23	45,198	6	25,402
1916	..	[a]	No Returns		36	22,577	4	8,994	28	35,277	9	42,752
1917	..	[a]	No Returns		80	66,475	25	27,996	23	20,445	6	18,828
1918	..	[a]	No Returns		184	230,514	22	49,390	13	26,150	8	13,715
1919	..	....	2	2,433	285	298,495	28	60,283	46	37,766	34	82,633
1920	..	....	5	8,371	90	174,557	13	29,087	30	60,669	50	93,449
1921	.	....	3	17,909	49	118,303	5	11,372	37	77,238	65	210,663
1922	..	....	4	7,497	37	53,347	2	9,418	23	41,016	62	184,509
1923	..	....	5	1,102	41	37,072	3	4,191	24	49,479	27	96,644
1924	..	....	2	3,997	29	29,815	2	15,064	33	63,937	26	79,685
1925	..	....	3	4,206	47	32,220	4	13,858	21	73,268	35	75,569
1926	..	....	8	3,627	39	22,842	3	10,836	25	72,108	34	121,342
1927	..	....	8	4,693	24	20,119	5	10,131	20	72,038	22	44,335

Year	*Germany*		*Great Britain and Ireland*		*Holland*		*Italy*		*Japan*		*Norway*	
	No.	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No*	*Tons*	*No.*	*Tons*
1913	162	465,226	688	1,932,153	95	104,296	38	50,356	152	64,664	74	50,637
1914[a]	89	387,192[a]	656	1,683,553	130	118,153	47	42,981	32	85,861	61	54,204
1915[a]	..	[a]	327	650,919	120	113,075	30	22,132	26	49,408	59	62,070
1916[a]	..	[a]	306	608,235	201	180,197	10	56,654	55	145,624	52	42,458
1917[a]	..	[a]	286	1,162,896	146	148,779	11	38,906	104	350,141	44	46,103
1918[a]	..	[a]	301	1,348,120	74	74,026	15	60,791	198	489,924	51	47,723
1919[a]	..	[a]	612	1,620,442	100	137,086	32	82,713	133	611,883	82	57,578
1920[a]	..	[a]	618	2,055,624	99	183,149	82	133,190	140	456,642	30	38,855
1921	242	509,064	426	1,538,052	98	232,402	85	164,748	43	227,425	35	51,458
1922	187	525,829	285	1,031,081	60	163,132	42	101,177	49	83,419	23	32,391
1923	109	345,062	222	645,651	35	65,682	21	66,523	44	72,475	48	42,619
1924	108	175,113	494	1,439,885	41	63,627	19	82,526	31	72,757	34	25,139
1925	121	406,374	342	1,084,633	47	78,823	31	142,046	23	55,784	48	28,805
1926	60	180,548	197	639,568	47	93,671	27	220,021	26	52,405	25	9,237
1927	105	289,622	371	1,225,873	68	119,790	25	101,076	19	42,359	12	5,363

Year	*Spain*		*Sweden*		*United States Coast*		*United States Great Lakes*		*Other Countries*		*Total*	
	No	*Tons*	*No.*	*Tons*	*No*	*Tons*	*No.*	*Tons*	*No.*	*Tons*	*No.*	*Tons*
1913	12	8,488	25	18,524	182	228,232	23	48,216	17	4,786	1,750	3,332,882
1914[a]	5	5,163	26	15,163	84	162,937	10	37,825	22	18,840	1,319	2,852,753
1915[a]	5	12,765	27	20,319	76	157,167	8	20,293	5	876	748	1,201,638
1916[a]	6	10,847	34	26,769	167	384,899	44	119,348	12	8,449	964	1,688,080
1917[a]	10	22,777	34	26,760	266	821,115	60	176,804	17	9,761	1,112	2,937,786
1918[a]	18	17,889	36	39,583	741	2,602,153	188	430,877	22	17,089	1,866	5,447,444
1919[a]	41	52,609	53	50,971	852	3,579,826	199	495,559	34	34,322	2,483	7,144,549
1920[a]	13	45,950	46	63,823	467	2,348,725	42	127,528	84	42,047	1,759	5,861,666
1921	11	47,256	27	65,911	166	995,129	7	11,284	78	63,465	1,377	4,341,679
1922	2	7,776	14	30,038	55	97,161	4	21,977	58	77,316	852	2,467,084
1923	7	4,488	10	20,118	69	96,491	14	76,326	22	19,308	701	1,643,181
1924	2	8,859	12	31,211	71	90,155	8	49,808	12	21,673	924	2,247,751
1925	1	127	17	53,750	94	78,766	7	50,010	14	15,165	855	2,193,404
1926	6	25,671	14	53,518	73	115,217	5	85,396	11	18,970	600	1,674,977
1927	5	22,899	18	67,361	58	124,270	8	54,948	34	30,802	802	2,285,679

[a] Returns are not available as regards Germany and Austria-Hungary for the war period (1914–18) nor as regards Germany for 1919 and 1920.

GERMANY. The 105 vessels of 289,622 tons launched in 1927 represented an increase of 109,074 tons over 1926 and were 27½ per cent of the world's output for the year as compared with Germany's proportion of 17½ per cent in 1926. The German yards launched 12 vessels of 78,670 tons fitted with steam turbines, including the largest vessel launched during the year, the *Cap Arcona* of 27,561 tons. The totals for turbine vessels included eight vessels, 31,115 tons, which had a combination of steam turbines and reciprocating engines. There were also launched 33 vessels of 115,882 tons to be fitted with oil engines, the largest being the motor tanker *C. O. Stillman*, of about 16,000 tons. Four motor tankers of 35,097 tons also were launched. Germany's total output included 14 vessels between 6000 and 8000 tons, four between 8000 and 10,000 tons and three vessels of above 10,000 tons each.

UNITED STATES. *Lloyd's Register* reported the United States' output for the year 1927 at 179,218 tons, and 28,605 tons higher than for 1926. Of the tonnage launched, 17 steamers and motor ships of 82,754 tons and 30 barges of 24,800 tons were built on the Atlantic Coast, eight steamers of 54,948 tons on the Great Lakes and 11 vessels of 16,716 tons on the Pacific Coast. The turbo-electric vessel *California* of about 22,000 tons, built at Newport News, Va., was the largest American vessel launched during the year and was followed by the motorship *Gulfpride* of 12,510 tons, built at Kearny, N. J. Four other vessels of between 6000 tons and 10,000 tons were launched on the Atlantic Coast and one of 10,180 tons and four between 8000 and 10,000 tons were launched on the Great Lakes. Including the *California*, mentioned above, and one other vessel of 8816 tons fitted with turbines in conjunction with electric motors, six turbine steamers of 54,916 tons were launched in the United States during the year. The motor tonnage launched amounted to 39,282 tons, and five oil tankers of 37,318 tons were launched, exclusive of tankers below 1000 tons.

HOLLAND. In addition to the vessels built for river navigation, of which Holland builds a considerable tonnage which is not included in

Lloyd's tables, the total tonnage launched in 1927 was 119,790 tons, or 26,119 tons higher than in the previous year. There were seven vessels of over 6000 each in the grand total, which included 49 vessels of 86,194 tons fitted with internal-combustion engines. There were eight motorships of 6000 tons and upwards, of which the *Christiaan Huygens* of 15,636 tons and the *Sibajak* of 12,040 tons were the largest. There were also launched four motor ships of 25,227 tons, intended for the bulk transportation of oil.

ITALY. The 1926 record of 220,021 tons, which was the largest output ever recorded for that country, was not maintained in 1927, when 101,076 tons represented the output. There were 18 vessels of 73,955 tons built in the Trieste district, as compared with an output of 94,136 tons in 1926. The year's totals comprise three vessels of 10,000 tons and upwards, the largest being the turbine steamer *Conte Grande* of 22,800 tons, launched at Trieste, and the *Ausonia* of 13,500 tons, launched at Genoa. There were launched 13 motor ships of 49,698 tons, the largest being the *Virgilio* of 11,900 tons built at Baia, near Naples.

DENMARK. The total tonnage launched during 1927 was 72,038, practically the same as in 1926; it was composed mostly of motor ships aggregating 63,690 tons. Seven of these were launched with a tonnage between 5000 and 9150 tons; six of them, with a total tonnage of 44,501 were intended for the transportation of oil in bulk.

SWEDEN. The 1927 output, 67,361 tons, was the highest ever recorded for this country, and over 92¼ per cent of the total was composed of motor ships, of which eight were between 5000 and 7000 tons each. Seven tankers or motor ships, of 42,566 tons, were launched.

FRANCE. With an output of 44,335 tons, including one steamer of 9,950 tons, five motor ships of 17,076 tons, and six trawlers of over 1000 tons each, France had the lowest production recorded since 1919. The *Ile de France*, of 43,500 tons, launched in 1926, was put into service between France and New York during the year.

RUSSIA. Shipbuilding in Russia had been under development for several years, and the result was seen in 1927 in the launching of 18 vessels of 43,917 tons. These included 10 motor ships of 25,414 tons, one of which, an oil tanker, was of about 7000 tons and two were of 4957 tons each.

JAPAN. Japanese yards in 1927 launched 42,359 tons, which was the lowest recorded since 1910. The totals comprised two motor ships of 5612 tons each and two turbine steamers of about 4280 tons each.

In the United States, according to a survey conducted by *Marine Engineering and Shipping Age*, the tonnage output, based on reports from 51 American shipyards, was 43 per cent greater in 1927 than in 1926, but the work on hand at the end of the year was 45 per cent less than at the end of the previous year. The number and tonnage of ships under construction were less than for any year since the War period, and the shipyard owners had to consider the contracts being placed by the Coast Guard and the Navy Department as the most encouraging features for the 1928 business.

According to this survey, 694 merchant vessels of all types with a total gross tonnage of 395,620 were delivered, being the output of 51 active shipyards, as compared with 41 in 1926, 49 in 1925, and 33 in 1924. Of the vessels delivered, 45½ per cent were propelled by steam machinery, 15½ per cent were motor ships, and the remaining 39 per cent were barges or other non-propelled craft. Shipyards on the Atlantic Coast and the Gulf Coast built 50 per cent; Great Lakes yards, 22 per cent; The Western river plants 20 per cent; and the West Coast yards 8 per cent. Of the Great Lakes deliveries, large bulk freighters formed the greater proportion of the 87,000 gross tons of ships built and delivered, and at the end of the year only three medium-sized vessels remained under way, the remainder under construction being barges, tugboats, car ferries and miscellaneous small craft.

According to the Department of Commerce, on Dec. 31, 1927, American shipyards were building or had under contract to build for private shipowners 220 steel vessels of 174,230 gross tons and 62 wood vessels of 29,608 gross tons.

SHIPLEY, SIR ARTHUR EVERETT. British zoologist, died at Cambridge, England, September 22. He was born at Datchet, Buckinghamshire, Mar. 10, 1861, and was educated at University College School and St. Bartholomew's Hospital, and specialized in zoölogy at Christ's College, Cambridge. As early as 1887 he was made a fellow of Christ's College, and in the same year was sent by the Colonial Office to investigate plant diseases in the Bermudas. He won many honors for his work, and received degrees from Princeton, the University of Michigan and Drexel Institute, Philadelphia, in addition to those conferred upon him in England. He was translator in part of Weismann's *Essays on Heredity* (2 vols., 1889–92), was a joint editor of the *Cambridge Natural History* (1905–09), and co-editor of *Parasitology* and of the *Journal of Economic Biology*. He wrote *Zoology of the Invertebrate* (1893); *Pearls and Parasites* (1908); *The Minor Horrors of Wars* (1915); *More Minor Horrors* (1916); *The Voyages of a Vice-Chancellor* (1919); *Cambridge Cameos* (1924).

SHIPPING. The total tonnage of the world's merchant fleets in June, 1927, as compiled by Lloyd's *Register of Shipping*, amounted to 59,688,000 tons, as compared with 42,514,000 tons in June, 1914, an increase of over 17,000,000 tons. These figures disregard sailing vessels and wood steamers, in view of their comparatively small importance in international trade. In these totals in the 13-year period a number of remarkable changes had occurred. Tankers had increased from 1,479,000 tons to 5,916,000 tons, and motor ships, including sailing vessels fitted with auxiliary power, from 234,000 tons to 4,271,000 tons. In 1914 the tonnage of the steamers fitted for oil fuel was 1,310,000 tons, while 18,500,000 tons were thus equipped in 1927.

In the United States, at the end of 1927, active seagoing shipping under the American flag was considerably greater than on Jan. 1, 1926. Privately owned tonnage had increased by more than 500,000 gross tons, principally in the following lines of employment: Foreign trade, general cargo carriers, 189,000 tons, and tankers, 92,000 tons; coastwise trade, general

NUMBER, GROSS TONNAGE, AND DESCRIPTION OF VESSELS OF 100 GROSS TONS AND UPWARD, AS RECORDED IN *LLOYD'S REGISTER*, 1927–28

Flag	*Steam and motor vessels*						*Sailing vessels*							
	Steel and iron		*Wood and composite*		*Total*		*Steel and iron*		*Wood and composite*		*Total*		*Grand total*	
	Number	*Gross tons*	*Number*	*Gross tons*	*Number*	*Gross tons*	*Number*	*Gross tons*	*Number*	*Gross tons*	*Number*	*Gross tons*	*Number*	*Gross tons*
American (United States):														
Sea	2,532	10,860,510	506	310,773	3,038	11,171,283	123	213,300	682	685,467	805	898,767	3,843	12,070,050
Northern lakes	539	2,434,693	...	......	539	2,434,693	24	80,557	...	......	24	80,557	563	2,515,250
Philippine Islands	61	75,547	36	9,425	97	84,972	...	.....	...	......	...	......	97	84,972
Total	3,132	13,370,750	542	320,198	3,674	13,690,948	147	293,857	682	685,467	829	979,324	4,503	14,670,272
British:														
Great Britain and Ireland	7,659	19,155,557	161	23,472	7,820	19,179,029	306	114,271	90	15,722	396	129,993	8,216	19,309,022
Australia and New Zealand	500	751,999	114	21,810	614	773,809	9	6,259	9	2,991	18	9,250	632	783,059
Canada—														
Coast	385	779,515	176	55,685	561	835,200	22	26,058	203	73,840	225	99,898	786	935,098
Lakes	108	316,294	...	......	108	316,294	2	3,839	...	......	2	3,839	110	320,133
Hongkong	118	276,115	5	1,841	123	277,956	...	.....	...	......	...	......	123	277,956
India and Ceylon	128	159,022	6	1,063	134	160,085	5	2,410	43	9,975	48	12,385	182	172,470
Other dominions	367	313,915	58	21,681	425	335,596	17	8,119	164	32,624	181	40,743	606	376,339
Total	9,265	21,752,417	520	125,552	9,785	21,877,969	361	160,956	509	135,152	870	296,108	10,655	22,174,077
Argentine	221	235,477	7	2,143	228	237,620	34	22,659	5	2,028	39	24,687	267	262,307
Belgian	220	494,443	1	396	221	494,839	2	4,161	1	229	3	4,390	224	499,229
Brazilian	330	507,350	2	375	332	507,725	12	8,523	32	9,183	44	17,706	376	525,431
Chilean	92	142,258	22	9,437	114	151,695	5	8,045	9	2,638	14	10,683	128	162,378
Chinese	192	316,475	19	8,987	211	325,462	3	865	5	1,362	8	2,227	219	327,689
Cuban	42	43,860	9	1,515	51	45,375	9	5,266	8	1,742	17	7,008	68	52,383
Danish	606	1,019,721	43	12,077	649	1,031,798	7	7,614	92	20,434	99	28,048	748	1,059,846
Danzig	34	124,636	...	......	34	124,636	...	.....	...	......	...	......	34	124,636
Dutch	1,117	2,642,647	8	2,378	1,125	2,645,025	24	7,279	7	1,699	31	8,978	1,156	2,654,002
Estonian	39	29,658	13	3,682	52	33,340	...	.....	48	11,322	48	11,322	100	44,662
Finnish	140	145,328	80	20,748	220	166,076	27	47,837	95	27,442	122	75,279	342	241,355
French	1,480	3,348,111	45	13,568	1,525	3,361,679	29	47,743	198	60,558	227	108,301	1,752	3,469,980
German	1,925	3,311,205	26	9,287	1,951	3,320,492	29	39,951	10	2,603	39	42,554	1,990	3,363,046
Greek	464	1,022,438	10	3,292	474	1,025,730	...	.....	10	3,083	10	3,083	484	1,028,813
Honduran	30	71,613	...	......	30	71,613	...	.....	2	347	2	347	32	71,960
Italian	1,057	3,873,318	75	22,204	1,132	3,895,522	21	20,184	276	67,677	297	87,861	1,429	3,983,383
Japanese	1,535	3,901,361	500	131,943	2,035	4,033,304	...	.....	...	......	...	......	2,035	4,033,304
Latvian	63	82,701	5	2,191	68	84,892	...	.....	20	3,890	20	3,890	88	88,782
Mexican	39	43,160	5	1,889	44	45,049	13	6,847	2	638	15	7,485	59	52,534
Norwegian	1,565	2,749,865	212	52,687	1,777	2,802,552	13	12,274	15	9,399	28	21,673	1,805	2,824,225
Panaman	17	40,351	4	6,940	21	47,291	...	.....	1	671	1	671	22	47,962
Peruvian	27	56,606	1	210	28	56,816	7	1,833	8	6,165	15	18,998	43	75,814
Portuguese	167	227,501	7	2,022	174	229,523	4	2,513	104	26,412	108	28,925	282	258,448
Rumanian	30	65,463	1	107	31	65,570	...	.....	...	......	...	.....	31	65,570
Russian (Soviet Union)	322	299,503	9	1,688	331	301,191	4	6,199	11	1,492	15	7,691	346	308,882
Spanish	690	1,115,250	103	20,475	793	1,135,725	8	8,265	84	17,379	92	25,644	885	1,161,369
Swedish	1,039	1,294,918	181	33,827	1,220	1,328,745	9	8,145	142	28,500	151	36,645	1,371	1,365,390
Turkish	173	143,555	6	6,883	179	150,438	...	.....	1	490	1	490	180	150,928
Uruguayan	38	21,724	7	1,821	45	23,545	5	4,867	5	1,880	10	6,747	55	30,292
Yugoslavian	139	244,992	5	706	144	245,698	...	.....	...	......	...	.....	144	245,698
Other countries	214	153,572	14	4,986	228	158,558	10	6,255	10	1,409	20	7,664	248	166,222
Country not stated	30	46,690	11	4,171	41	50,861	25	49,438	8	1,741	33	51,179	74	102,040
Total	26,474	62,438,917	2,493	828,385	28,967	63,267,302	808	792,576	2,400	1,133,032	3,208	1,925,608	32,175	65,192,910

NOTE.—A considerable number of vessels which were not completed appear in this table Steamers of less than 100 tons gross and sailing vessels of less than 100 tons net are not included. Vessels trading on the Caspian Sea and wood or composite vessels trading on the Great Lakes of North America are not included. In the absence of satisfactory information, the records of most of the sailing vessels belonging to Greece, Turkey, and southern Russia are omitted from this table. Japanese sailing vessels are not recorded in *Lloyd's Register* and therefore do not appear in this table. Under the heading "Country not stated" are included all vessels entered in *Lloyd's Register* without record of flag because definite information had not been received at the time of going to press, and under "Other countries" are grouped the figures for a number of countries because the tonnage owned by each country is comparatively small and therefore is not shown separately.

cargo carriers, 12,000, and tankers, 123,000 tons. The Shipping Board tonnage had increased by 58,000 tons, general cargo carriers in the foreign trade accounting entirely for this amount.

During the year there were heavier cargo movements, which indicated that world shipping had come out of the post-war depression and that a gradual but steady improvement in overseas trade was likely. Of course, it was realized that during the latter half of 1926, on account of the coal strike in Great Britain, there had been an abnormal increase of activity in the carrying of coal from the United States to Great Britain with the inevitable reaction. As a result, there was a slight increase in idle shipping during 1927, which, however, was not as large as on Jan. 1, 1926, when it was estimated that some 5,760,000 gross tons were laid up in the various maritime countries. This amount declined during that year, so that on Jan. 1, 1927, the idle shipping amounted to 4,904,000 gross tons; this decreased during 1927, so that, on Dec. 31, the amount laid up was estimated at 4,331,000 gross tons. In other words, at the end of the year 1927 there was 25 per cent less shipping laid up than at the beginning of 1926. The status of the principal maritime countries is shown in the accompanying table, from the Transportation Division of the U. S. Bureau of Foreign and Domestic Commerce.

IDLE SHIPPING OF PRINCIPAL MARITIME COUNTRIES (SAILING VESSELS EXCLUDED)
[*In thousands of gross tons*]

Country	*Jan. 1, 1926*	*Jan. 1, 1927*	*July 1, 1927*	*Dec. 31, 1927*
Idle in home country:				
United States—				
Shipping Board	3,518	2,336	2,550	2,371
Shipping Board tankers	134	56	11	41
privately owned	458	457	321	544
Government-owned other than U. S. Shipping Board	10	27	22	22
Total	4,120	2,876	2,904	2,978
United Kingdom	613	529	621	539
France	134	118	91	80
Italy	140	128	264	276
Netherlands	109	3	3	16
Norway	22	37	24	93
Sweden	30	9	9	35
Greece	99	106	79	77
Japan	35	48	24	85
Belgium	21	14	..	1
Denmark	68	20	..	26
Spain	44	35	33	31 [a]
Australia	51	71	29	29 [b]
Idle in foreign countries [c]	279	100	77	65
Total	5,760	4,094	4,158	4,331

[a] October 1.
[b] July 1.
[c] Refers mainly to shipping of countries listed above.

According to statistics of the United States Shipping Board, the American foreign trade in the calendar year 1926 required the services of 5761 vessels, aggregating 26,330,000 gross tons. Ships of 32 foreign countries were represented among the carriers of American freight and passengers. Of the total number of ships entering or leaving United States ports during 1926, more than two-thirds sailed under the flags of other countries. American ships numbered 1678, with an aggregate gross tonnage of 7,336,000. American vessels were proportionately more numerous in the tanker traffic than in the other trades. Of a total of 594 tankers, aggregating 3,700,000 gross tons, 250, aggregating 1,620,000 gross tons, were American. Of a total of 444 combination passenger-cargo ships, aggregating 3,800,000 gross tons, 127 ships, aggregating 838,000 gross tons, were American. Of a total of 4000 general cargo carriers, aggregating 18,000,000 gross tons, 993, aggregating 3,640,000 gross tons, were American. Included in the preceding were 347 sailing vessels aggregating 280,000 gross tons, and of that number 205, aggregating 190,000 gross tons, were ships carrying the American flag.

Total exports during the year were 68,373,000 long tons. Imports amounted to 44,888,000 long tons of cargo. The total number of entrances and clearances was 58,400.

In the fiscal year 1925, charges paid for the carriage of 93,000,000 long tons of freight amounted to approximately $600,000,000. At similar rates the nation's freight bill for 1926, on 113,000,000 cargo tons, exceeded $728,000,000. A conservative estimate indicated that $480,000,000 of this total was paid to foreign shipping companies. On Oct. 1927, the privately owned American merchant marine included 1230 steam and motor vessels of 1000 gross tons and over, with a total gross tonnage of 6,034,845, more than 91 per cent of this tonnage being in active service on that date. Of this number, however, only 170 vessels were engaged in overseas foreign trade, the remainder of the active fleet being employed on coastwise and Caribbean routes. The Shipping Board fleet of Oct. 1, 1927, included 801 vessels, 280 of which were engaged in overseas foreign trade routes.

SHIPWRECKS. See SAFETY AT SEA.

SHOES, SHOE INDUSTRY. See BOOTS AND SHOES.

SHOOTING. An international small-bore rifle match featured shooting competition in 1927. The British team, which had won a similar contest in 1926, scored a total of 7803 points, shooting over the English ranges in August. The United States team went into action at Camp Perry, Ohio, in September, and exceeded the British total by four points, thereby establishing a new world's record. An international team rifle contest held during the year was won by Switzerland, Sweden finishing second and the United States third. In the individual small-bore test, however, Lawrence Muesslein of the U. S. Army was victorious, the individual free rifle honors going to M. M. Hartman of Switzerland. R. M. Cutts, Jr., a lieutenant in the U. S. Marine Corps, won the U. S. rifle championship.

The Grand American trapshooting tournament resulted in Otto Newlin, of Georgetown, Ill., winning the handicap contest. The national amateur title went to S. M. Crothers, of New York City, while Fred S. Tomlin of Glassboro, N. J., retained his professional championship. Mrs. H. H. Harrison of Rochester, N. Y., captured the women's crown.

SIAM, sī-ăm′. A monarchy in southeastern Asia, bounded by Burma on the west, French Indo-China on the east, and the Gulf of Siam on the south. Capital, Bangkok.

AREA, POPULATION, ETC. The area is estimated at 200,148 square miles and the population, according to the census of 1919–20, 9,207,355; estimated in 1925–26, 9,831,000. Buddhism is the prevailing religion. On Mar. 31, 1926, there were 16,185 Buddhist temples and 129,206 priests. On Mar. 31, 1925, government schools numbered 343, including 236 secondary departments, with 47,268 pupils and 1958 teachers. There were also 65 special (technical) departments in government schools with 1101 pupils, principally for the training of teachers. Local schools numbered 4707, with 527,603 pupils and 9872 teachers. Private schools numbered 573, with 27,435 pupils and 1446 teachers. Over 90 per cent of the local schools and 60 per cent of the government schools are situated in temples. There is a university at Bangkok.

PRODUCTION. The principal occupation of the people is agriculture, and the chief article of production as well as of export is rice. The area under rice in 1925–26 was 4,076,900 acres and the yield 2,209,900 tons. The livestock on Mar. 31, 1926, consisted of 8389 elephants, 247,158 horses and ponies, 4,013,882 bullocks and 4,216,127 buffaloes. The forest resources are extensive and teakwood is an important product, the exploitation of which is almost entirely in the hands of the British. The mineral resources are varied and extensive and include coal, zinc, tin, iron, tungsten, wolfram, manganese and antimony. The output of metallic tin in 1925–26 was 7885 tons.

COMMERCE. Exports for the whole Kingdom of Siam for the fiscal year ended Mar. 31, 1927, amounted to 239,260,000 ticals ($107,670,000). Compared with the previous fiscal year, Siam's exports registered a decrease of 5,500,000 ticals ($2,475,000). Despite the fall in exports, imports in 1926–27, amounting to 196,520,000 ticals ($88,343,000), showed a gain of 15,143,000 ticals ($6,814,000) over receipts of the previous fiscal year. The country's normally favored relations of exports to imports was not altered, however, the excess of exports amounting to 43,000,000 ticals ($19,350,000) for the year ended Mar. 31, 1927.

FINANCE. The budget for 1926–27 estimated ordinary revenues at 94,000,000 ticals and ordinary expenditures at 93,788,188 ticals leaving a surplus of 211,812 ticals. The public debt of Siam on Mar. 31, 1927, stood at £12,117,659.

COMMUNICATIONS. In 1925–26, 987 vessels of 1,045,814 tons entered and 987 of 1,044,049 tons cleared from the port of Bangkok. On June 30, 1926, 1631 miles of state railways were open to traffic and 281 miles were under construction.

GOVERNMENT. Executive power is vested in the King, who is assisted by a consultative ministry comprising nearly all the King's relatives; and legislative power in a council composed of the state ministers and members appointed by the crown. King in 1927, Prajadhipok, born Nov. 8, 1893, succeeded to the throne on the death of his brother, Rama VI, on Nov. 26, 1925.

SIBERIA. The northern Asiatic part of Russia. Area, estimated in 1926 at over 5,000,000 square miles; population in 1924 estimated at 12,800,000. Rich and important as were the mining, forest and fur resources of Siberia, 90 per cent of the population lived in rural districts, and the most important productive activities were agriculture and the industries allied with it. This condition was likely to persist for many years, as it would take much capital not yet available, and a long period of time, to develop Siberia industrially. Siberia is one of the world's important sources of furs, and trapping is of considerable economic importance over large portions of the country, particularly in the forest and tundra region. The development of the mineral wealth of Siberia is second in importance only to the development of its agriculture. The industries of Siberia include flour mills, distilleries, breweries, tanneries, and soap and tallow works. In 1927, the acreage of crops in Siberia was estimated at 7 per cent above that in pre-war times, and of that acreage wheat occupied over 50 per cent, as against 35 per cent in 1923. Livestock was increasing in numbers, with horses nearly as numerous as in pre-war times, cattle 20 per cent more numerous, and sheep and goats twice as numerous. The gross value of the industrial output for the past two years had increased by 100,000,000 rubles (gold). The trade turnover was nearing the 1,000,000,000-ruble mark, whereas two years previously it aggregated only 500,000,000 rubles. In its plans for the development of Siberia, the Soviet government gave first place to the basic industries, such as coal and gold mining and metallurgical work, and second place to the more profitable of other industries, such as woodworking, paper, glass, and pottery, and the production of agricultural implements. See RUSSIA.

SIERRA LEONE, sē-ĕr′rȧ lē-ō′nē. A British colony and protectorate on the west coast of Africa; bounded by French Guinea on the north and Liberia on the east and southeast. The approximate area of the colony is 4000 square miles and the population, according to the census of 1921, 85,163, of whom 1161 were Europeans. The chief town is Freetown, with a population in 1921 of 44,142. The birth rate in 1925 was 23.4 per thousand and the death rate 22.9 per thousand, infant mortality being 245 per 1000 registered births. Freetown is the chief seaport in West Africa, being a coaling station and the headquarters of the British Imperial forces in West Africa. Vessels entered and cleared in the foreign trade in 1925 had a tonnage of 3,737,084. The total exports in 1926 amounted to £1,713,646; imports £1,844,122; revenue (1925), £945,581; expenditure, £843,321; public debt, £1,729,848. The total railway mileage open to traffic, with sidings, was 356 miles. The receipts from all sources for 1925 amounted to £231,889, as compared with £219,046 in 1924, which constituted a record. Passengers carried in 1925 numbered 587,944, as compared with 543,918 in 1924.

The protectorate is situated between 6° and 10° N. latitude and 10° and 14° W. longitude, and its greatest extension inland is 180 miles. Area, 27,000 square miles; population, according to the census of 1921, 1,456,148, of whom 1,450,903 were natives. The chief exports are palm kernels, kola nuts, and palm oil. It is divided into three provinces, with a European commissioner at the head of each. The governor and commander-in-chief of the colony is also governor of the protectorate. He is assisted by an executive and legislative council. Governor and commander-in-chief in 1927, Sir A. R. Slater.

SIKIMOTOXIN. See CHEMISTRY, under *Biochemistry*.

SILESIA, sĭ-lē′shȧ. The term applied to (1) a former division of the Austro-Hungarian Empire; (2) a province of Prussia. The former, previously a crownland of Austria, became after the war a part of the new republic of Czechoslovakia (q.v.). Its area is 1708 square miles;

population, according to the census of 1921, 672,268. The province of Silesia in Prussia was originally the largest division of that state, with an area of 15,573 square miles and a population of 5,225,962 in 1910. After a plebiscite in 1921, Upper Silesia was divided between Germany and Poland, leaving under the control of Prussia an area of 14,022 square miles (Upper and Lower Silesia), with a population in 1925 of 4,504,103; and transferring to Poland an area of 1240 square miles, with a population of 891,069 in 1921.

SILK. An International Silk Congress met at Milan in June and during a four-day session discussed the future of the silk trade and industry in their international relations. The world's production of silk, although the smallest in volume among the textiles, was only surpassed in value by cotton, and it was estimated by Signor Giorgio Mortara, professor at the Royal University at Milan, to have an annual gold value of $1,000,000,000. Where formerly the European market was able to hold its own, now Japan and other Asiatic countries were the leading producers of raw silk, so that even the silk market of Italy was more or less dominated by Japan, while that of France was subsidiary to the United States. On the other hand, there had been a large increase in the consumption of raw silk and in its use in various manufactured fabrics. During the year the prices for Japanese raw silk, which were fairly strong until midsummer, declined to a low point, although in the last weeks of December there were evidences of a strengthening of the market.

RAW SILK PRODUCTION, INCLUDING TUSSAH SILK
[*Compiled by the Statistical Bureau of The Silk Association of America*]

	1926–27 *Pounds*	*1925–26* *Pounds*	*1924–25* *Pounds*	*1923–24* *Pounds*
Europe	9,226,000	10,449,000	12,533,000	11,519,000
Italy	8,499,000	9,656,000	11,585,000	10,808,000
France	529,000	573,000	739,000	562,000
Spain	198,000	220,000	209,000	154,000
Levant	2,425,000	2,524,000	1,984,000	1,676,000
Asia: Total quantity exported [a]	79,797,000	72,874,000	69,631,000	53,015,000
China, Shanghai	[b] 10,000,000	[b] 10,394,000	[b] 8,817,000	[b] 8,697,000
China, Canton	6,989,000	5,302,000	6,550,000	6,018,000
Japan	61,508,000	56,978,000	54,064,000	38,100,000
India	1,300,000	200,000	200,000	200,000
Total, pounds	91,448,000	85,847,000	84,148,000	66,210,000
Tussah	1,900,000	2,205,000	1,712,000	990,000
Grand total, pounds	93,348,000	88,052,000	85,860,000	67,200,000

[a] The production of raw silk in China is an unknown quantity.

[b] Excludes tussah silk.

The domestic consumption of raw silk (including tussah) in China is estimated to be 52 per cent of the production. The exports from Canton and Shanghai during the season 1926–27 were 19,500,000 pounds, which would indicate a crop of approximately 42,000,000 pounds.

The Japan crop is estimated at 76,100,000 pounds.

During the year the Raw Silk Association of Japan was working in connection with the Agricultural Department of that country to stabilize the industry and prevent the uncertainties that had marked this crop in previous years. The Agricultural Department extended financial aid to Japanese farmers to the extent of more than 50,000,000 yen, and on Oct. 29, 1927, an Imperial Raw Silk Company, Ltd., with a capital of 5,000,000 yen, was formed, with the understanding that it would receive coöperation from the Bank of Japan in order to finance quantities of raw silk. It was believed that the financial and curtailment plans put in force had acted to stabilize the raw silk market, not only in Japan but in America and Europe. The Raw Silk Association of Japan was not only working on market conditions but was seeking to adopt standard grading of raw silk which would be accepted internationally and by which the product would be tested and classified on a standard basis.

The United States imported silks and manufactures of silk to a total value of $441,245,492 during 1927, as compared with $443,245,399 in 1926. The amount of raw silk imported in 1927 increased by 7,582,401 pounds over 1926, the total imports amounting to 74,004,593 pounds, as compared with 66,422,192 pounds in 1926, although the value in 1927, which was $390,365,475, showed a decrease as compared with $392,759,684 in 1926. Japan in 1927 sent 61,796,561 pounds, valued at $334,160,383, and China 10,787,770 pounds valued at $49,774,659. In 1927 the imports of silk waste totaled 12,280,765 pounds, valued at $8,650,206, an increase in quantity but a decrease in value as compared with 1926 figures. The imports of manufactures of silk in 1927 aggregated in value $42,157,958, as against $40,569,818 in 1926. The 1927 imports included: Spun silk, 873,479 pounds, valued at $2,102,930; broad silks (except pile fabrics), 3,526,274 pounds, $17,861,546; bolting cloths, 23,975 pounds, $605,301; pile fabrics, 707,594 pounds, $4,596,207; silk wearing apparel, $8,479,395; and silk laces and embroideries, $4,314,757. In 1927 the United States exported silk manufactures to the amount of $15,297,829, as compared with exports of $17,788,377 in 1926.

According to the Silk Association of America, during 1927 there were imported 552,441 bales or a monthly average of 46,037, as compared with 504,200 bales, or a monthly average of 42,017, in 1926. At the end of December there were 53,540 bales in stock as compared with 52,627 at the end of January, and 52,478 at the end of December, 1926, and 47,326 at the end of January, 1926. The approximate deliveries to American mills during 1927 amounted to

551,379 bales, or a monthly average of 45,948, as compared with 501,546 bales, or a monthly average of 41,796, in 1926.

SILK, Artificial. See Rayon.

SILVER. The world's production of silver in 1926, as given by the Director of the Mint of the U. S. Treasury Department, was 253,587,088 fine ounces, valued at $159,437,803. This was the largest production for any one year and established a record for all time. At the end of 1927 competent authorities estimated the production for that year at practically the same amount. Handy & Harmon of New York stated the quantity at 251,000,000 ounces, of which the United States supplied 59,000,000 ounces, Mexico 102,500,000 ounces and Canada 22,200,000 ounces. The average price of silver for the year was 56.37 cents, as compared with 62.107 cents in 1926. The low price of the metal was said to be sufficient to cause some curtailment in the production from dry and siliceous ores, but, on the other hand, larger amounts of silver were becoming available as a by-product of copper and lead ores. Production of silver in the United States for 1927 was estimated at about the same quantity as in 1926 but Mexico, Austria and Burma were expected each to show small increases, which would counterbalance decreases in Canada, Peru and Bolivia. These seven countries were responsible for 88 per cent of the world's production of silver in 1926.

In the United States there was again a reduction in the output of silver in 1927 as compared with the prior year, the decline amounting to 4,072,124 ounces. In 1915, the year of largest domestic production, silver totaled 74,961,075 ounces.

UNITED STATES PRODUCTION OF SILVER, 1927

States	*Silver*	
	Ounces	*Value* [a]
Alaska	556,825	$315,720
Arizona	6,666,386	3,779,841
California	1,457,310	826,295
Colorado	3,636,505	2,061,898
Georgia	4	2
Idaho	8,674,588	4,918,491
Illinois	1,500	851
Michigan	51,742	29,338
Missouri	100,210	56,819
Montana	11,497,935	6,519,329
Nevada	5,308,720	3,010,044
New Mexico	762,809	432,513
Oregon	31,024	17,591
Pennsylvania	1,974	1,119
South Dakota	92,179	52,266
Tennessee	81,263	46,076
Texas	864,061	489,923
Utah	18,658,597	10,579,424
Vermont	1,588	900
Washington	160,561	91,038
Wyoming	5	3
Philippine Islands	40,836	23,154
Total production	58,646,622	33,252,635

[a] Value at 56.7c. per ounce, the average New York price of bar silver.

Exports and imports of silver from and into the United States for the calendar year 1927 compared as follows with earlier years:

Year	*Exports*	*Imports*	*Excess or Loss*
1927	$75,625,000	$55,074,000	— $20,551,000
1926	92,258,000	69,596,000	— 22,662,000
1925	99,127,000	64,595,000	— 34,532,000
1924	109,891,000	73,944,000	— 35,947,000
1923	72,468,000	74,453,000	+ 1,985,000
1922	62,807,000	70,806,000	+ 7,999,000

SIMMONS COLLEGE. A non-sectarian college for women at Boston, Mass.; founded in 1899. The enrollment on Nov. 1, 1927, was 1461, distributed among the following schools: Household economics, 286; secretarial studies, 483; library science, 213; general science 67; social work, 161; Prince School of Store Service Education, 62; public health nursing, 186; students in economic research, 3. There was an enrollment of 270 in the summer session. The faculty numbered 134, including three on leave of absence and six new appointments for the year. The productive funds of the institution amounted to $3,288,282.18, and the income for the year was $463,930.54. The library contained 42,000 volumes. President, Henry Lefavour, Ph.D., LL.D.

SINGAPORE. See Straits Settlements.

SINGING. See Music.

SISOWATH. King of Cambodia, died at Pnompenh, Cambodia, Indo-China, August 10. He was born at Bangkok in 1840, before Cambodia came under French rule, being the second son of the king then reigning over a considerably larger territory than the present Cambodia. When his brother, Norodom, became king on the death of his father, Sisowath became "second king." Norodom died in 1904, and Sisowath then became uncrowned king of Cambodia, his coronation not taking place until 1906. By this time Cambodia had passed through the vicissitudes of agreement, revolt, and the partial restoration of native administration, and the affairs of the country had become settled under French control, leaving large powers of self-government in the hands of a native council. King Sisowath throughout his reign supported the French commissioner with consistent friendship, and was himself regarded as one of the most enlightened personages in his realm. He visited France shortly after his coronation.

SKATING. Charles Gorman of St. John, N. B., for the second successive year was the leading figure in the U. S. amateur skating world. Gorman won the international outdoor and indoor championships and the Middle Atlantic title, and finished in a tie with Harry Nelson of Chicago for the national outdoor crown. Gorman's best showing was in the international indoor meet held at Pittsburgh, where he retained his title by winning every major event except the three-mile race. Miss Leila Brooks of Toronto successfully defended her women's international title and she also captured the Middle Atlantic outdoor championship. The women's national outdoor laurels went to Miss Elsie Muller of New York City. In the fancy skating competitions Nathaniel W. Niles of Boston won the men's title, while Miss Beatrix Loughran of New York City captured the women's crown. Evensen of Norway won the world's title at Tammerfors, Finland, with Thunberg of Finland second.

SLATE. The value of the slate sold at the quarries of the United States in 1927 was $10,873,000, according to estimates furnished by producers to the U. S. Bureau of Mines. This was 12 per cent less than the value reported for 1926. Decrease in demand, especially during the last six months of the year, and lower prices, due to keen competition, were general in the slate industry during 1927. Quarries were reported idle, and several firms discontinued business. Consolidation was also noted.

SLAVIC LITERATURE. See PHILOLOGY, MODERN.

SMELTING. See METALLURGY.

SMITH, FRANK L. See UNITED STATES, under *70th Congress, First Session.*

SMITH, HENRY PRESERVED. American theologian and Orientalist, died at Poughkeepsie, N. Y., February 25. He was born in Troy, Ohio, Oct. 23, 1847, and graduated at Amherst, 1869, and at Lane Theological Seminary, 1872. He studied at the Universities of Berlin and Leipzig, and was ordained to the Presbyterian ministry in 1875. He was appointed a professor at Lane Seminary in 1877. In 1891, in an address on "Biblical Scholarship and Inspiration," he urged a distinction between inerrancy and inspiration, and, for his attack on the former doctrine he was tried by the Presbytery of Cincinnati and suspended. Subsequently he entered the ministry of the Congregational Church. From 1898 to 1906 he was a professor at Amherst, then going to the Unitarian Theological Seminary at Meadville, Pa. (1907–13). He served as chief librarian and professor at the Union Theological Seminary, New York, until 1926. He published *Inspiration and Inerrancy* (1893); *The Bible and Islam* (1897); *A Commentary on Samuel* (1899); *Old Testament History* (1903); *The Religion of Israel* (1914); *Essays in Biblical Interpretation* (1921), and *The Heretic's Dissent* (1926), which was the story of his own experiences.

SMITH, JAMES, JR. Former United States Senator from New Jersey, died at Newark, N. J., April 1. He was born at Newark in 1851, and was educated at Wilmington College. Engaging in business, he later became a manufacturer of patent leather. Interested in politics as a Democrat, he served in the Senate for one term, 1893 to 1899, afterwards becoming the chief leader of the Democratic party in New Jersey. In 1904 he became president of the Federal Trust Company, and after 1915 he ceased to be prominent in politics.

SMITH, JESSE MERRICK. American consulting engineer and patent expert, died at New York, April 1. He was born at New York in 1849, and received his scientific education at Rensselaer Polytechnic Institute, Troy, N. Y., and at the École Centrale des Arts et Manufactures, Paris, France. After engaging in blast-furnace construction and coal mining in Pennsylvania, in 1880 he went to Detroit, Mich., and remained there for 18 years as a consulting expert and designer of special machinery for manufacturing plants and power stations. He was president of the American Society of Mechanical Engineers in 1909, and was in consulting practice and an expert in patent litigation in New York from 1898 to 1914.

SMITH COLLEGE. A non-sectarian college for women at Northampton, Mass., founded in 1871. The enrollment for the autumn of 1927 was 2140, including 75 graduate and four non-collegiate students. There were 225 faculty members. The productive funds amounted to $4,987,-413.58, and the income from these funds to $274,179.59. The library contained 146,000 volumes. Spending the year in study in France were 42 members of the junior class. The William Allan Neilson Chair of Research was established in the Spring by friends and admirers of Dr. Neilson, in honor of the tenth year of his presidency at Smith, and Dr. Kurt Koffka, formerly Professor of Psychology at the University of Giessen, was elected to the chair for a term of five years; Dr. Alexander Mintz, a Russian psychologist, was appointed as research associate in the department, together with a graduate student, to assist Dr. Koffka. President, William Allan Neilson, Ph.D., L.H.D., LL.D.

SMITHSONIAN INSTITUTION. An organization founded in 1846, according to the terms of the will of James Smithson of England, who, in 1826, bequeathed his property to the United States of America to "found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust, Congress determined that the Federal government was without authority to administer the trust directly, and therefore constituted an "establishment" whose statutory members are the President, the Vice President, the Chief Justice, and the heads of the executive departments. The affairs of the Institution are administered by a Board of Regents, whose membership consists of the Vice President, the Chief Justice, three members of the Senate, and three members of the House of Representatives, together with six other persons, other than members of Congress, two to be residents of Washington and the other four of different States. The Chancellor of the Institution in 1027 was Chief Justice Taft.

The Institution administers the following bureaus: The National Museum, the National Gallery of Art, the Bureau of American Ethnology, the International Exchange Service, the National Zoölogical Park, the Astrophysical Observatory, and the United States Regional Bureau of the International Catalogue of Scientific Literature. It also administers the Freer Gallery of Art.

The Institution's researches on the radiation of the sun, under the direction of Dr. C. G. Abbot, were continued during the year. A remarkably regular periodicity of 25⅞ months in the variation of the sun's radiation was found by Dr. Abbot. Many other researches in various phases of geology, biology, anthropology and astrophysics were carried on under the direction of the Institution.

The outstanding publication of the Institution for the year was a 1200-page work entitled *World Weather Records,* which made available to meteorologists for the first time a long homogeneous series of weather records from all parts of the world. During 1927 there were issued 119 volumes and pamphlets, of which 182,846 copies were distributed to libraries, educational institutions and individuals.

The income of the Institution, averaging about $65,000, is derived from interest on its endowed funds, which in 1927 amounted to a little over $1,000,000. It is also charged by Congress with the disbursement of the government appropriations for the support of the bureaus under its administrative charge. Dr. Charles D. Walcott (q.v.), secretary of the Institution since 1907, died Feb. 9, 1927, and Dr. C. G. Abbot became acting secretary at that time. The assistant secretary was Dr. Alexander Wetmore.

SMUT OF WHEAT. See Botany, under *Plant Diseases.*

SNOW REMOVAL From Highways. See Roads and Pavements.

SOAPSTONE. See Talc and Soapstone.

SOCCER. Soccer continued on its amazing advance in popularity in 1927, particularly in the United States. Five countries sent powerful elevens to America, thus providing a decided international flavor to the year's competitions. The famous Hakoahs from Austria, the Olympic champions from Uruguay, a workingmen's team from England, a Palestine eleven and the Royal Madrid Club from Spain all made more or less extended tours of the United States.

Bethlehem won the championship of the American Soccer League, composed first of 12 and later 10 clubs, but the Fall River eleven captured the National Challenge Cup, emblematic of the professional championship of the United States. The Heidelberg, Pa., eleven won the national amateur title, while the college championship went to Princeton University. The annual international match between England and Scotland resulted in a tie, but England triumphed in turn over France, Belgium and Luxemburg. Cardiff City won the English Cup series and the eleven of Oxford University defeated that of Cambridge.

SOCIAL ECONOMICS. See Child Labor; Coöperation; Labor Legislation; Maternity Protection; Minimum Wages; Old-Age Pensions; Strikes and Lockouts, etc.; also Literature. English and American.

SOCIAL INSURANCE. See Unemployment; Workmen's Compensation; Maternity Protection; Old-Age Pensions.

SOCIAL PROGRESS, International Association for. This international Association, of which the Association for Labor Legislation is the American section, was created in 1925 by amalgamating three former allied organizations, the International Association for Labor Legislation, the International Association on Unemployment and the International Social Insurance Committee. At its second meeting held at Vienna Sept. 13 to 18, 1927, 17 countries were represented by delegates from national sections of the Association. In addition the governments of 13 countries, and the International Labor Office sent representatives. Prof. Irving Fisher and Otto T. Mallery represented the American section.

Resolutions adopted at Vienna by the International Association for Social Progress (published in full in *Industrial and Labor Information*, vol. xxiv, No. 1, Oct. 3, 1927, pp. 7–13) include (1) labor protection and efficiency; (2) principles of unemployment insurance; (3) credit control; (4) social consequences of rationalization; (5) international labor conventions; (6) maternity insurance and protection of the family.

Labor Protection and Efficiency. The Association recognizes the importance of the official German inquiry on the relation between output, working hours and wages. Without discussing in detail the methods employed by this inquiry, the Association considers that it offers a sound scientific basis for future investigations by the different national sections.

Principles of Unemployment Insurance. The Association "considers that unemployment insurance should, where such is not already the case, be made compulsory." Additional principles laid down and amplified in the Association's resolution include the following: In no case should an insured unemployed worker be compelled by the insurance authorities to accept a job which would involve any economic, physical or moral degradation. Unemployment insurance benefits should be withheld in case of unemployment due to a trade dispute. Workers should not lose their right to benefit merely by reason of their employment being of a seasonal kind and subject to more or less clearly defined slack periods. No discrimination under unemployment insurance against foreign workers. Intermittent unemployment should be covered.

Unemployment insurance system should always include an employment service of the highest possible efficiency, and cooperate closely with other organizations aiming to prevent or reduce unemployment, such as agencies for stabilizing employment through advance planning of public works. Compulsory unemployment insurance should be administered with the active coöperation of responsible representatives of employers' and workers' organizations.

In fixing the scale of benefits, account should be taken of the normal earnings of the workers; no distinction should be made between the sexes. In case of prolonged unemployment, benefit period should be lengthened. While the method of providing for the cost of unemployment insurance may vary in different countries, it is generally desirable that this cost should be shared among the public, the employers and the workers. The Association affirms "that in the opinion of the majority it is important to unite all industries and trades to face the risk of unemployment and to insure that they should all belong to the same general system of unemployment insurance."

The Association publishes a periodical *L'Avenir du Travail*, edited by Dr. Stephane Bauer, at the international headquarters at Basle, Switzerland.

SOCIAL PSYCHOLOGY. See Psychology.

SOCIAL SCIENCE and Social Work. See Welfare Work; Child Welfare.

SOCIETY ISLANDS. See Oceania, French Establishments in.

SOCIETY OF CHEMICAL INDUSTRY. See Chemistry, Industrial.

SOILS. The trend of thought and practice in the United States was strongly toward the more selective and discriminating use of soils rather than toward extension of the tillable area, only those soils being used which would give the most profitable return on the labor expended. As a result, the areas devoted to pastures and woodland were being increased, and reclamation of additional land was being discouraged.

With this selective use of lands, there has been a disposition to employ more scientific methods of increasing soil productivity. However, as Sir John Russell recently pointed out, there is no pressing necessity for or evidence of any great increase in output per acre, although the cost of labor has increased and will continue to increase the cost of the output per man. The situation in the United States is thus stated by Dr. O. E. Baker of the U. S. Department of Agriculture: "The area of land under cultivation has decreased, the production per acre has remained stationary, there are fewer farmers, prices are lower—and yet the American people are securing from the land more to eat and wear."

The application of science in the study and more efficient use of the soil received an impetus during the year through the First International Congress of Soil Science, which was held in Washington from June 13 to 22, 1927, under the joint auspices of the International Society of Soil Science and the American Society of Agronomy.

While the deliberations of the congress covered a wide range, special emphasis was placed upon soil survey and mapping, and a worldwide interest in this subject was disclosed. The making of soil surveys and maps was going on actively in many countries. A general map of the soils of Europe was issued during the year under the auspices of the International Society of Soil Science, and a similar map of the soils of the United States, which had been in course of preparation for several years, was completed. The latter map was based on detailed surveys made by the Bureau of Soils, which by 1927 had covered 331,869 square miles, and on reconnaissance surveys 579,938 square miles, and represented all of the more important types of soils of the country. The bureau made during the year detailed surveys of 23,199 square miles and reconnaissance surveys of 5676 square miles.

Soil erosion has recently been receiving increased attention. The dire consequences of unrestrained and aggravated soil erosion are typically and acutely illustrated in China (See *Geographical Review*, April, 1927, pages 226–235).

It has been estimated that soil erosion costs the farmers of the United States $200,000,000 a year, removing 126,000,000 pounds of plant food annually, or 20 times as much as is removed by cropping. It also makes large areas of land untillable and increases the expense for fertilizer to restore the lost fertility. The Department of Agriculture has undertaken to determine why certain kinds of soils erode easily and others resist erosion, in order to find more effective methods of prevention.

BIBLIOGRAPHY. Especially valuable additions to sources of information on soils during the year were a revised and enlarged edition of *Soil Conditions and Plant Growth,* by E. J. Russell (London, 1927); *Principles of Soil Microbiology,* by S. A. Waksman (Baltimore, 1927); abstracts of papers presented at the Congress of Soil Science, and three bibliographical contributions from the Library of the U. S. Department of Agriculture, issued in mimeograph form, as follows: *Bibliographical Contributions 13, A Classified List of Soil Publications of the United States and Canada; 14, List of the Publications on Soils Issued by the U. S. Department of Agriculture, 1844–1926,* compiled by E. B. Hawks and C. Trolinger; *15, List of the Publications on Soils Issued by the State Agricultural Experiment Stations of the United States Through 1926,* compiled by C. L. Feldkamp and C. E. Pennington.

SOLIS-COHEN, JACOB (DA SILVA). American physician and author, died in Philadelphia, Pa., December 22. He was born in New York, Feb. 28, 1838, and had his early education at the Central High School, Philadelphia. He graduated in medicine at the University of Pennsylvania in 1860 and served as a surgeon in the Union Army and the U. S. Navy during the Civil War. Dr. Solis-Cohen won three medals during the Civil War and finally received the Congressional Medal of Honor nearly fifty years after the war ended. He began private practice in Philadelphia in 1866 and before long was an international authority on laryngology. His removal of a laryngeal cancer in 1867 is said to have been the first successful operation of its kind. He was an honorary professor at Jefferson Medical College, Philadelphia, emeritus professor at the Philadelphia Polyclinic and College for Graduates in Medicine, and lectured extensively on diseases of the throat. One of the founders of the American Laryngological Association, he served as its president for two terms. His numerous writings, which include *A Treatise on Inhalation, Diseases of the Throat, Croup in its Relation to Tracheotomy,* and *The Throat and the Voice,* are considered authoritative reference books on the diseases of the throat.

SOLOGUB, FEODOR (FEODOR KUGMICH TETERNIKOV). Russian author, died in Leningrad, December 5. He was born in St. Petersburg in 1863, and studied and taught at the Teachers' Institute there until 1907. His first great success, *The Little Demon,* appeared in 1907, and among other published works were *The Sorcery of Death; The Created Legend; The Old House,* and *The Sweet Scented Name.* In 1921 Sologub and his wife, a well known critic, suffered severe privations in Russia and were permitted eventually to leave the country. On the day set for their departure the author's wife disappeared, and her body was found in the River Neva.

SOLOMON, SOLOMON JOSEPH. British artist, died at Birchington, Kent, July 27. He was born in London in 1860, and was educated at private schools. He received his first artistic training at Heatherley's, proceeding thence to the Royal Academy Schools, and afterwards to the Munich Academy, and to the École des Beaux Arts, Paris, where he studied under Cabanel. After a tour through Europe and North Africa, Solomon returned to Paris and exhibited in the Salon a portrait which met with general approval. He exhibited his first picture at the Royal Academy, London, in 1881, but it was not until five years later that he came into prominence with "Cassandra." It was followed the next year by "Samson," and then in regular succession came "Niobe," "The Judgment of Paris," and "The Birth of Love." The popular success of these canvasses led to Solomon's election, in 1896, as A. R. A., full honors as an R. A. coming ten years later. His most noteworthy portraits were of Mrs. Patrick Campbell (1893); Israel Zangwill (1894); Lady Swaythling (1924). In 1918 he was elected president of the Royal Society of Artists. During the World War Mr. Solomon developed a plan for camouflage and he was in camouflage service until the end of the war. He published *The Practice of Oil Painting* (1910).

SOMALI COAST. See French Somali Coast.

SOMALILAND, Italian. See Italian Somaliland.

SOMALILAND, sō-mä′lē-lănd, **PROTECTORATE.** A protectorate belonging to Great Britain on the Gulf of Aden, bounded by Italian Somaliland, Abyssinia, and the French Somali coast. Area about 68,000 square miles; population estimated at 344,000, nearly all Mohammedan and entirely nomadic except on the coast where permanent settlements have been made. The chief town is Berbera, with 30,000 inhabitants at the census of 1921. Other towns are Lulhar, with 7300, and Zeyla, with 7000. The main source of wealth in the interior is stock raising. The principal imports are dates, sugar, textiles, rice, and specie, and the principal exports are hides and skins, gums and resins, cattle and sheep, and glue. The only forms of transport are by camel and motor car. In 1925–26 the imports were £361,262; exports, £242,222; revenue £89,057; expenditure, £167,955. The government is under the British Colonial Office, which is represented by a local governor and commander-in-chief. Governor in 1927, H. B. Kittermaster, appointed Jan. 26, 1926.

SONG RECITALS. See Music.

SORMA, AGNES. See Minotto, Countess Agnes.

SOUTH, University of the. A Protestant Episcopal institution of higher learning at Sewanee, Tenn., founded in 1857. The enrollment for the autumn term of 1927 was 322, of whom 306 were registered in the college and 19 in the theological school, three being registered in both departments. There were 35 students in the summer quarter, 25 of whom returned for the autumn session. The faculty had 27 members, exclusive of student assistants. The income from productive funds was $60,000, while the receipts from all sources were $320,000. The library contained 41,848 volumes. President, Benjamin Ficklin Finney, LL.D.

SOUTH AFRICA, Union of. A self-governing dominion of the British Empire, comprising the provinces of the Cape of Good Hope, the Transvaal, Natal, and the Orange Free State; constituted a legislative union by the South African Act of September, 1909.

Area and Population. Total area, 472,347 square miles; divided as follows: Cape of Good Hope, 276,966; Natal, 35,284; Transvaal 110,450; Orange Free State, 49,647. Total population, according to the census of 1921, 6,928,580, distributed as follows: Cape of Good Hope, 2,782,719; Natal, 1,429,398; Transvaal, 2,087,636; Orange Free State, 628,827. The total European population of the Union of South Africa, according to the final audit of the 1926 census, is shown in the following table:

Province	*Males*	*Females*	*Total*	*Per cent increase since 1921*
Cape	357,583	348,554	706,137	8.53
Natal	81,170	77,746	158,916	16.18
Transvaal	313,783	294,849	608,622	11.99
Orange Free State	104,392	98,598	202,985	7.65
Total	856,918	819,742	1,676,660	10.84

The principal cities with their populations according to the census of 1921 were: Johannesburg, 288,131; Cape Town, the seat of the legislature, 207,404; Durban, 146,310; Pretoria, 74,052; Port Elizabeth, 46,094; East London, 34,673. The capitals of the respective provinces are: Cape of Good Hope, Cape Town; Transvaal, Pretoria; Natal, Pietermaritzburg; Orange Free State, Bloemfontein. The movement of population in 1925 was: Births, 95,022; deaths, 56,552; marriages, 30,233. For a distribution of population by religion according to the census of 1921, see Year Book for 1924.

Education. In 1924, there were 4631 state and state-aided schools for European scholars, with 330,371 pupils, and 3250 schools for non-European scholars, with 262,763 pupils. The number of teachers in primary, intermediate, and secondary schools numbered 21,005. There were 286 private schools for white pupils, 372 for colored, with 20,490 white scholars, 16,892 colored, and 1867 teachers. The total number of students enrolled in the universities and colleges at the end of 1925 was 5570. The largest universities in point of number of students, with their average enrollment at the end of 1925, were: Cape Town, 1504; Witwatersrand, 1250; Stellenbosch, 869; and Transvaal University College, 769.

Production, etc. The leading agricultural products of the Union are wheat and maize. The total production of wheat in 1924–25 was 421,416,000 lbs. and the total production of maize 4,187,924,000 lbs. Other products included barley, 49,213,800 lbs.; oats, 239,006,250 lbs.; Kaffir corn, 312,214,000 lbs.; potatoes, 310,893,000 lbs., and tobacco, 12,762,476 lbs. The 1925 agricultural census showed the number of livestock in the Union as follows: 9,738,337 cattle; 814,894 horses; 120,010 mules; 729,856 donkeys; 162,732 ostriches; 35,569,712 sheep; 8,022,857 goats, and 800,883 pigs. The production of wool in 1925 was 156,969,334 lbs. and of mohair 8,051,114 lbs.

Gold retained its prominent position in the mineral industry of South Africa during 1926, establishing a new record for both quantity and value of production, 9,954,761 fine ounces worth £42,285,139. The increase in 1926 production was primarily a result of the expansion of the plants at some of the largest mines, notably the Government Areas, which was the largest producing gold mine in the world. Diamond production also reached a new record in 1926, when 3,217,966 metric carats were mined. The discoveries of platinum deposits apparently had reached a stage warranting the prediction that the Transvaal would become one of the world's leading producers. The quantity actually produced during 1926 amounted to only 4951 ounces, approximately, valued at £93,307, but this was entirely from experimental plants and was likely to be followed by a gradual increase as methods were perfected and new equipment was installed. The total value of all minerals produced in 1926 was £58,695,000.

The figures for the industrial census of the Union for the year ended June 30, 1926, showed a substantial recovery from the low point recorded for 1923–24. The gross value of the 1925–26 output was four times that for the calendar year 1911, and 75 per cent larger than that for the year 1915–16. The increase since 1923–24 was generally ascribed to the general recovery in business conditions and to the inauguration of a definite protective tariff policy in 1925. The figures relate to 48 of the industries of the Union and represent probably between 70 and 80 per cent of the total industrial activity of the country. They show that the industrial production of the Union already exceeded in value that of the mineral production, for which the country was primarily known. The reported industrial production for the year 1925–26 amounted to £70,747,000; mineral production for the calendar year 1925 was valued at £54,478,000, and for 1926 at £58,695,000.

COMMERCE. The latest figures for a complete year's trade are those for 1925, when the imports were valued at £67,790,598 and the exports at £82,194,219. (Consult the preceding YEAR BOOK for the leading items in this trade.)

FINANCE. The proposed expenditures (exclusive of railways and harbors) to be defrayed from revenue funds of the Union of South Africa during the fiscal year beginning Apr. 1, 1927, were placed before the Assembly in the spring. The proposal called for a vote of £27,437,907, or an increase of £486,088 over the amount originally provided for in the year 1926–27; as compared with the revised figures of actual current expenditures, however (£27,372,000), the increase is only £65,920. Of the total disbursements proposed, £9,114,750 is for salaries, wages and allowances and £18,323,157 for general services.

COMMUNICATIONS. In oversea shipping in 1925 there entered 1497 vessels of 5,344,237 tons and cleared 1446 of 5,249,083 tons. Considering the drought conditions which prevailed for several months throughout South Africa, with a consequent heavy loss in agricultural produce traffic, the South Africa Railways' financial year which ended Mar. 31, 1927, was in many respects a remarkable one. The railways' budget disclosed earnings amounting to £24,093,347, a decline of only £58,060 from those of 1925–26. Gross working expenditures totaled £19,437,177, an increase of £701,852. The surplus available to meet interest on capital and other charges amounted to £4,656,170, as against £5,416,082 in the previous year. Passengers carried during the year numbered 80,084,249, an increase of 3,801,662 over 1925–26; revenue-earning coal traffic reached a new high level of 10,118,773 tons, and the number of livestock transported, 4,322,040 head, was the largest for any one year. The total mileage operated by the railroad administration at the close of the year was 12,897. Of this total, 12,206 miles were Government-owned and 691 were leased from private owners. The number of locomotives in stock was 2060, of which 1965 were steam-driven and 95 electrically driven. The cars in stock in service at the end of the year totaled 3445.

GOVERNMENT. The executive power is vested in the governor-general, appointed by the Crown, who acts through an executive council of ministers, each in charge of a department; and legislative power in a parliament, consisting of a senate of 40 members, of whom eight are appointed by the governor-general in council and 32 by the provinces (eight each); and a house of assembly of 135 members, distributed among the provinces as follows: Cape of Good Hope, 51; Transvaal, 50; Natal, 17, and Orange Free State, 17; the basis of suffrage being the same as that existing in each province at the time of the formation of the Union.

The governor-general, commander-in-chief, and High Commissioner for the Union in 1927 was the Earl of Athlone; and the executive council was constituted as follows: Prime Minister and Minister of Native Affairs, J. B. M. Hertzog; Mines and Industries, F. W. Beyers; Railways and Harbors, C. W. Malan; Finance, N. C. Havenga; Justice, T. J. de V. Roos; Defense, Colonel Creswell; Labor, T. Boydell; Agriculture, J. C. G. Kemp; Lands, P. G. W. Grobler; Posts, Telegraphs, and Public Works, W. B. Madeley.

HISTORY. The outstanding event in the history of the Union in the course of the year was the settlement of the flag dispute which had torn asunder the internal politics of the country for several years. The settlement as finally agreed upon in October was the result of a compromise between General Hertzog and General Smuts. General Hertzog was the leader of the Nationalist group which wished to repudiate the Union Jack, and General Smuts was the spokeman of the South African Party, which includes most of the European element. After the compromise was reached, the bill was rapidly passed through the legislature. The flag as accepted consists of the government design of orange, white and blue horizontal stripes, but with the shield removed. In place of the shield there are the Union Jack and the Republican flags in the centre of the white stripe in the following order: The Union Jack horizontal nearest the pole, then the Orange Free State flag vertical, last the Transvaal vierkleur horizontal. These three flags together occupy about one-third of the white stripe.

The Union Jack will be a South African flag flying officially alongside the national flag to signify the Union's status internationally as a member of the British Commonwealth of Nations. There will be thus two South African flags, namely, the national or domestic flag, and the Empire flag. The Union Jack will be flown officially all the year round in the provincial capitals and in the chief coastal towns. The flying of the Union Jack in the smaller towns will rest with the government of the day.

SOUTH AMERICA. See under the various South American countries; and under NAVAL PROGRESS.

SOUTH AUSTRALIA. One of the states of the Australian Commonwealth, comprising the central and southern part of the island continent; bounded by the Northern Territory on the north, by Western Australia on the west, and on the east by Victoria, New South Wales and Queensland. Area, 380,070 square miles; population, according to the census of 1921, 495,336; estimated on June 30, 1927, 569,254, exclusive of aborigines, of whom the number is unknown. The number of full-blooded natives living in the settled portions has been estimated at only 1609. Capital and largest city, Adelaide, with a population (including suburbs), in 1925, of 303,614. In 1925 the movement of population was: Births, 11,457; deaths, 4979; marriages, 4255.

Education is secular, free, and compulsory. In 1925 there were 1029 schools with 84,284 pupils under instruction; private schools numbered 184, with 14,990 pupils. For higher education there is the University of Adelaide, and there are various institutions for the training of teachers and for technical instruction. In 1925–26 the principal crops, with their acreage and production, were as follows: Wheat, 2,465,648 acres, 28,603,101 bushels; barley, 239,337 acres, 4,134,824 bushels; oats, 158,062 acres, 1,798,443 bushels; hay, 517,220 acres, 612,671 tons; vines produced 13,074,874 gallons of wine. The chief mineral products are gold, copper, ironstone flux, and gypsum. The total value of the mineral production in 1925 was £1,028,471. The imports for 1925–26 amounted to £13,903,176 and the exports £19,273,608. The chief exports are wool, wheat, copper and other minerals, meats, butter, wine, honey, fruits, hides and skins, tallow, leather, and manures. The revenue for 1927 was £11,261,469, and the expenditure £11,256,469. The revenue is largely derived from inland sources—railways and territorial receipts—and the chief items of expenditure are public service, railways, and the service on the public debt, which amounted to £79,251,332 on June 30, 1926.

In 1924–25, 1280 vessels of 4,573,822 tons entered the ports of South Australia. In 1925 there were 3400 miles of railways in the state. A comprehensive programme of railway construction had been proposed in South Australia. See AUSTRALIA, *Railways.*

The administration is under a governor appointed by the Crown, with an executive council; legislative power is vested in a council and an assembly, the latter consisting of 46 members elected for three years. Governer in 1926, Maj.-Gen Sir George Tom Molesworth Bridges; prime minister, treasurer, and minister of railways, R. L. Butler (appointed Apr. 4, 1927).

SOUTH CAROLINA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,683,724. The estimated population on July 1, 1927, was 1,845,000. The capital is Columbia.

AGRICULTURE. The following table gives the acreage, production, and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	2,421,000	735,000[a]	$72,080,000
	1926	2,648,000	1,008,000[a]	58,968,000
Corn	1927	1,497,000	25,449,000	22,904,000
	1926	1,426,000	22,103,000	19,893,000
Tobacco	1927	104,000	75,920,000[b]	15,564,000
	1926	85,000	56,780,000[b]	18,230,000
Oats	1927	449,000	10,327,000	7,745,000
	1926	416,000	10,483,000	7,024,000
Potatoes	1927	29,000	3,084,000	5,765,000
	1926	29,000	3,129,000	5,472,000
Sweet potatoes	1927	53,000	5,300,000	4,240,000
	1926	47,000	3,760,000	3,760,000
Hay	1927	446,000	358,000[c]	6,436,000
	1926	260,000	201,000[c]	4,010,000
Wheat, winter	1927	80,000	880,000	1,838,000
	1926	50,000	800,000	1,240,000

[a] bales, [b] pounds, [c] tons.

MINERAL PRODUCTION. Clay industry products, stone, raw clay, sand and gravel formed the considerable items in the list of the mineral production of the State in 1925. Clay products in 1925 were valued at $1,906,241; in 1924 at $1,511,154. The output of stone was 833,100 short tons in 1925; in 1924, 824,030 short tons. The product was valued at $1,315,613 for 1925; for 1924, at $1,527,114. The total value of the mineral products of the State in 1925, duplications eliminated, was $3,507,804; in 1924, $3,444,366.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Dec. 31, 1926, were $12,752,387; their rate per capita was $6.98. They included $3,426,347 apportioned for education. Totals not included in the above, of $373,253 in interest and of $4,594,708 in permanent improvement outlays, brought the aggregate of State expenditure to $17,720,348. Of this, $5,992,609 was for highways, $2,409,751 being for maintenance and $3,582,857 for construction.

Revenue receipts were $17,120,608; or per capita, $9.38. Of their total, property and special taxes yielded 32.4 per cent, attaining a per capita rate of $3.04. Earnings of departments and compensation paid the State for officials' services furnished 6.9 per cent of revenue; 48.3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from sales taxes on gasoline, tobacco products and soft drinks.

Net State indebtedness on Dec. 31, 1926, was $5,885,527, or $3.22 per capita. Property subject to ad valorem taxation bore a valuation of $424,863,722. State taxes levied thereon were $2,888,899, or $1.58 per capita.

TRANSPORTATION. The number of miles of railroad line in the State on Jan. 1, 1927, was 3,744.82. No additional trackage was built in 1927.

EDUCATION. Rapid progress in the movement of affiliation of lower schools with high schools was reported. Through this movement the elimination of grades in the lower schools, where more properly conducted in the high schools, and supervision of the lower schools by high school superintendents, were effected. There were enrolled in the public schools of the State, in 1927, 471,701 pupils. Of these, 435,919 were in the elementary schools and 35,782 in high schools. Expenditures for public education attained a total of $16,874,760. Salaries of teachers averaged $939.62.

CHARITIES AND CORRECTIONS. The State Board of Public Welfare, established in 1920, was the chief central administrative authority over institutions for the care and custody of individuals. The chief among these institutions were: South Carolina Industrial School for Girls (white), South Carolina Industrial School for Boys (white), State Reformatory for Negro Boys, State Training School (for the Feeble-minded), and a state hospital for mental disease having on Jan. 1, 1927, according to the U. S. Department of Commerce, 2558 patients.

LEGISLATION. The legislature convened in regular annual sessions in January. A campaign in the State for the renewed strict enforcement of the Sunday observance laws led to a demand for their modification. In response to this demand the legislature passed a statute liberalizing these laws, so as to permit Sunday activity in sports save such as were commercial or boisterous, and to permit the sale of newspapers, automobile tires, ice, medical and surgical supplies. Governor Richards vetoed this act.

POLITICAL AND OTHER EVENTS. Governor John G. Richards was inaugurated in January. Shortly after entering office he ordered sheriffs to proceed against all Sunday sports, and in March ordered strict enforcement of the State Sunday observance laws in all respects. There resulted numerous arrests of golf players on the courses at winter resort towns, and the Aiken resort colony procured a temporary injunction against molestation of Sunday playing. The Governor directed the law officers to disregard this injunction. At a special election in Charleston, June 15, the voters defeated a proposal that the city adopt government by commission.

Officers. Governor, John G. Richards; Lieutenant Governor, Thomas B. Butler; Secretary of State, W. P. Blackwell; Treasurer, J. H. Scarborough, Budget Secretary, Walter E. Duncan; Attorney General, John M. Daniel; Comptroller General, A. J. Beattie.

Judiciary. Supreme Court: Chief Justice, R. C. Watts; Associate Justices, Thomas P. Cothran, John G. Stabler, Eugene S. Blease, Jesse F. Carter.

SOUTH CAROLINA, University of. A non-sectarian State institution of higher education, located at Columbia, S. C.; chartered in 1801 and opened in 1805. The enrollment for the autumn session of 1927 totaled 1499, of whom 995 were men and 504 women. The registration for the summer session was 521. The faculty, including instructors, numbered 86. The productive funds of the institution were $446,594.62 for the fiscal year. There were 82,000 volumes in the library. President, Davison McDowell Douglass, A.M., D.D. LL.D.

SOUTH DAKOTA. Population. The fourth State census of South Dakota was taken as of May 1, 1925, and showed a total population of 681,260, of which 20,559 were Indians. Of this total 347,579 were males and 313,122 were females. The Fourteenth Census of the United States, returned for South Dakota 636,547 on Jan. 1, 1920. The estimated population on July 1, 1927, was 696,000. The capital is Pierre.

Agriculture. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	4,655,000	134,995,000	$76,947,000
	1926	4,630,000	83,340,000	48,337,000
Wheat, winter	1927	105,000	1,890,000	1,984,000
	1926	75,000	638,000	734,000
Wheat, spring	1927	2,987,000	44,303,000	46,961,000
	1926	1,842,000	10,973,000	12,948,000
Oats	1927	2,480,000	72,664,000	26,159,000
	1926	1,984,000	23,213,000	8,357,000
Hay	1927	4,115,000	5,580,000[a]	35,123,000
	1926	3,678,000	2,292,000[a]	27,481,000
Barley	1927	1,089,000	32,670,000	18,949,000
	1926	778,000	7,858,000	4,086,000
Flaxseed	1927	594,000	5,940,000	10,989,000
	1926	475,000	2,755,000	5,234,000
Potatoes	1927	66,000	7,590,000	4,174,000
	1926	55,000	3,300,000	5,247,000
Rye	1927	154,000	2,772,000	2,190,000
	1926	103,000	689,000	466,000

[a] tons.

Mineral Production. Gold, largely from the Homestake mine, the largest producing gold mine in the United States, furnished the bulk of the mineral production of the State. In 1927 the Homestake mine produced approximately $6,677,000 in gold and 92,000 ounces of silver, according to the U. S. Bureau of Mines. In 1926 the Homestake and several small gold mines in South Dakota produced $5,778,376 in gold and 82,186 ounces of silver. Stone, sand and gravel, and some coal were produced. The total value of the State's mineral production, duplications eliminated, was $7,971,650 in 1925; in 1924, $6,925,676.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $9,264,250; their rate per capita was $13.52. They included $1,736,111 apportioned for education. Totals not included in the above, of $745,402 expended in public enterprises (cement plant, coal mine and gasoline station), of $3,415,637 in interest and of $5,364,213 in permanent improvement outlays (including those in public service enterprises), brought the total of State expenditure to $18,789,502. Of this, $5,274,468 was for highways, $1,042,149 being for maintenance and $4,232,319 for construction.

Revenue receipts were $17,474,383, or per capita, $25.51. Of their total, property and special taxes yielded 27.5 per cent, attaining a per capita rate of $7.01. Earnings of departments and compensation paid the State for officials' services furnished 7.2 per cent of revenue; 24.6 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $16,743,882, or $24.44 per capita. Property subject to ad valorem taxation bore a valuation of $1,876,078,532. State taxes levied were $4,996,638, or $7.29 per capita.

Transportation. The number of miles of railroad line in the State Jan. 1, 1927, was 4,244.56. Trackage built in 1927 totaled 15.87 miles of first track.

Education. According to the Superintendent of Public Instruction, in the *Journal* of the National Education Association, public education was handicapped by the legislature's discontinuing State aid to rural and consolidated schools.

Charities and Corrections. A Board of Charities and Corrections exerted central authority over charitable and correctional institutions of the State. These included the State Penitentiary, South Dakota School for the Deaf, School for the Blind and Training School, State School for the Feeble Minded, State Hospital, and Soldiers' Home. The state prison, according to statistics of the U. S. Department of Commerce, had 494 inmates in Jan. 1, 1927, and 1317 persons were undergoing treatment in the State hospital for mental diseases.

Legislature. The legislature met in regular biennial session in January. It passed and sent to the Governor, who vetoed it, a bill to establish capital punishment in the State. From 3 cents the State tax on motor gasoline sales was increased to 4 cents, from July 1, the act further providing that the added cent of taxation should be paid into the general fund of the State. Facing a prospective deficit of from $500,000 to $1,000,000 a year in the accounts of the State government, due to the insufficiency of the 1.5 mill general levy and the prospect of reduced valuations of farm lands, the legislature considered an income tax enactment, but a bill to this purpose was defeated in the lower house by a heavy majority. A general appropriation act containing 630 items of appropriation was passed. This was vetoed in its entirety by Governor Bulow, who insisted on a lower scale of appropriation. In consequence of his action it became necessary to hold a special session of the legislature, convening June 22, to enact a general appropriation bill along compromise lines approved by the Governor. The special session gave the name of President Coolidge, then on his summer sojourn at Rapid City, S. D., to one of the summits of the Black Hills.

Political and Other Events. The State game lodge in the Black Hills, near Rapid City, was tendered to President Coolidge, for his residence for the Summer. He accepted, and removed thither in the middle of June, remaining, save for occasional trips, until September 9. The Sioux Indian tribe adopted him as a member. The State called in April its issue of $4,000,000 4¾ per cent rural credit bonds, refunding them with an issue at 4¼ per cent. The Sioux Indians of the State pressed a claim of $1,000,000,000 against the United States for lands in the Black Hills, to which they asserted title. The sugar industry made a start in the State with the establishment at Belle Fourche of a beet sugar factory said to represent an investment of $1,000,000. It was anticipated that the surrounding farm country, which had been tested for beet growth, would develop a large sugar-beet output.

Officers, Governor, W. J. Bulow; Lieutenant Governor, H. E. Covey; Secretary of State, Gladys Pyle; Treasurer, A. J. Moodie; Auditor, E. A. Jones; Attorney General, Buell F. Jones.

Judiciary. Supreme Court, Presiding Judge, Dwight Campbell; Samuel C. Polley, James Brown, Carl G. Sherwood, N. D. Burch.

SOUTH DAKOTA, University of, A State institution of higher education at Vermillion, founded in 1882. The enrollment for the first semester of 1927 was 1191, and 224 were registered for the summer session of 1927. The faculty and staff numbered 135. The productive funds amounted to $412,950, and the income for the year was $75,306.02. The library contained 62,000 volumes. President, Robert L. Slagle, Ph.D., LL.D.

SOUTH DAKOTA STATE COLLEGE. A State college of agriculture and the mechanic arts, at Brookings, founded in 1882. The enrollment for the summer session and the autumn of 1927 was 1311, distributed as follows: Agriculture, 102; engineering, 183; home economics, 128; pharmacy, 70; general science, 380; special students in music, art, commerce, etc., 26; secondary school of agriculture, 235; graduate students, 22; summer school, 165. The faculty, including experiment station and extension staffs in agriculture and home economics, numbered 158. The productive funds of the college for the year amounted to $738,508.08, with 133,000 acres of land; the income for 1926–27 for college maintenance and extension of physical plant was $805,362, for agricultural experiment station, $129,176, and for agricultural and home economics extension service, $274,126. The library contained 35,000 bound volumes and 12,000 pamphlets. The new Lincoln Memorial Library, constructed at a cost of $2,000,000, was completed during the year and dedicated September 10, by President Coolidge. President, Charles W. Pugsley, B.S., D.Agr.

SOUTHERN CALIFORNIA, University of. A coeducational institution of higher education at Los Angeles, Cal.; founded in 1879. It comprises the following schools and colleges: Liberal arts, music, dentistry, pharmacy, graduate, religion, law, speech, commerce and business administration, education, social welfare, architecture, and university college. The enrollment for 1926–27, including summer session and extension classes, was 14,057. For the summer session of 1927 the enrollment was 4369. In the autumn of 1927 there were 500 members on the faculty. The endowment was $1,000,000, the income from tuition fees $1,278,488.09, and other income $117,377.66. There were 105,000 volumes in the library. A Student Union building was erected on the campus during 1926–27. President, Rufus B. von Kleinsmid, Sc.D., J.D.

SOUTHWEST AFRICA. A former German protectorate, administered since Dec. 17, 1920, by the Union of South Africa under a mandate from the League of Nations; bounded on the north by Portuguese West Africa, on the west by the Atlantic Ocean, and on the south and southeast by the Cape of Good Hope Province of the Union, and on the remainder of the eastern boundary by the Bechuanaland Protectorate. Capital, Windhoek, with a population of 4196 Europeans and 13,160 natives; area, 311,820 square miles; population, according to the census of 1926, 24,511 Europeans and about 208,300 natives. The non-German element in the European population is almost entirely South African. The chief native tribes are Hottentots, Bushmen, Hereros, Ovambos, and Bergdamarus.

In 1926 there were 46 government schools with 3003 pupils, and 22 registered private schools with 826 pupils, for the education of the white children; for the natives there were in the same year 48 government-aided mission schools with 3945 pupils, and 12 mission schools not yet aided. Stock raising is the principal pursuit; agriculture has been found impractical on a large scale because of the scarcity of water. The principal mineral product is diamonds; others are copper, vanadium, marble, tin, gold and silver. Under the influence of expanding mineral and agricultural development, the foreign trade of Southwest Africa has shown a consistently upward tendency. The returns for 1926 disclosed imports valued at £2,507,625 and exports amounting to £3,292,986. The estimates for 1926–27 were: Revenue, £706,000; expenditure, £987,077. There are about 1333 miles of government-owned railway and 98 miles of privately owned lines. The head of the government is an administrator representing the governor-general of the Union of South Africa; he has full power to legislate and is assisted by an advisory council. Administrator in 1927, A. J. Werth, appointed in November, 1925. See South Africa, Union of.

SOVIET SOCIALIST REPUBLICS OF RUSSIA. See Russia.

SPAIN. A constitutional monarchy of southwestern Europe, occupying the greater part of the Iberian peninsula and separated from France by the Pyrenees. Capital, Madrid.

Area and Population. Continental Spain has an area of 190,050 square miles; including the Balearic and Canary Islands and Spanish possessions on the north and west coasts of Africa, the total area is 194,800 square miles. According to the census of 1920, the population was 21,959,086, as compared with 19,950,817 in 1910. The cities with over 150,000 inhabitants on Dec. 31, 1925, were as follows: Madrid, 791,511; Barcelona, 745,711; Valencia, 262,647; Seville, 212,326; and Malaga, 157,250. The movement of population in 1925 was: Births, 644,693; deaths, 432,164; marriages, 158,849.

Although the population of Spain, which was 20,392,000 in 1913, increased to 22,128,000 in 1926, the birth rate per thousand in 1926 was only 29.9, compared with 30.03 in 1913. The principal reason to which the decrease was attributed was the diminishing number of marriages, although there was also a noticeable decrease in the size of families throughout Spain. During 1900, when the population was 18,566,000, there were 161,201 marriages; whereas in 1926, with the population given above, there were 162,035 marriages, a proportionate falling off of .1 per cent.

Education. On Jan. 1, 1925, there were 29,308 public schools and about 5500 private schools, the total number of pupils being 3,098,840. Secondary education is conducted in "institutions" or middle-class schools, and there must be at least one of them in every province. In 1925 there were 60 "institutions" with 63,084 pupils. There are eleven universities, situated at Barcelona, Madrid, Granada, Murcia, Oviedo, San Diego, Salamanca, Seville, Valencia, Valladolid and Zaragoza. At Cadiz there is a medical faculty affiliated with the University of Seville, which also maintains an educational institution in the Canary Islands.

Production. The following table from the *Statesman's Year Book* for 1927 shows the area under the principal crops and the yield for 1926:

	Area *Acres*	*Yield* *Cwts.*
Wheat	10,770,818	79,796,490
Barley	4,470,917	41,927,360
Oats	1,861,851	10,940,912
Rye	1,864,711	11,940,876
Maize	1,005,184	8,731,004
Millet	4,814	41,468
Meslin	112,375	622,282
Rice	122,425	6,396,622
Beans	556,777	3,624,536
Kidney beans	684,261	2,509,012
Peas	148,403	723,934
Chick peas	628,526	2,638,290
Lentils	88,062	537,102
Tares	499,419	3,019,878
Vetches	174,604	1,224,008

Spain is rich in minerals. The leading minerals in order of value in 1925 were as follows: Coal, lead, copper, iron and zinc. The total production of all grades of coal in 1926 was 6,641,631 metric tons.

Commerce. The Spanish foreign trade balance during 1926 improved considerably, imports valued at 2,153,523,000 pesetas being 96,000,000 pesetas less than during 1925 and exports amounting to 1,605,588,000 pesetas being 21,852,000 pesetas more than in that year. The decline in imports was partly attributable to the restrictions initiated by the royal decree of July 9, 1926, which limited the importation of manufactured articles with a view to protecting Spanish national industry. The unfavorable trade balances for 1925 and 1926, converted at the average exchange rates for those years, were $95,334,000 and $81,642,000, respectively.

Finance. The Spanish ordinary budget for 1927 showed a greatly reduced deficit from the levels of the four fiscal years up to July, 1926. The deficit reduction, however, was due not so much to important economies as to the fact that items of expenditure previously included in the ordinary budget statement were charged against the extraordinary budget. The 1927 ordinary budget provided for income at 3,073,379,000 pesetas and expenditures at 3,139,441,000 pesetas, leaving an estimated deficit of 66,062,000 pesetas.

The new budget was revised to include 15 categories instead of 13, as formerly, hence comparison in some of the individual items was not possible.

The total public debt in January, 1927, was 17,725,000,000 pesetas.

Communications. On Jan. 1, 1926, the merchant navy contained 1211 steamers of 1,164,868 tons net, and 548 sailing vessels of 89,784 tons net. The total length of railways in Spain is approximately 10,000 miles, of which 7256 miles are of standard gauge.

Government. According to the constitution, executive power is vested in the King, who acts through a responsible ministry, and legislative power in the Cortes, or parliament, consisting of a senate and a chamber of deputies. Parliament was dissolved by royal decree, Sept. 16, 1923. The King in 1927 was Alfonso XIII, who succeeded on his birth (which occurred after the death of his father), May 17, 1886. Under the constitution the principle of ministerial responsibility is established, but in 1923 a military directorate was set up under Lieut. Gen. Primo de Rivera. On Dec. 3, 1925, the military directorate was superseded by a civil government, under the presidency of Rivera, and composed of members of a new political party, the "Unión Patriotica." All the former ministry departments were reestablished, but the change was one in name only, as everything continued as before when Rivera was dictator. The civil government in 1927 was constituted as follows: President of the Council and Minister of Foreign Affairs, Primo de Rivera; Justice and Worship, G. Ponte; War, General Duke of Tetuan; Marine, Vice Admiral Cornejo; Finance, C. Sotelo; Interior, General Anido; Public Instruction, M. Callejo; Public Works, M. Benjumea; Labor, M. Aunos.

History. There was no evidence to denote any weakening of the position of Primo de Rivera throughout the course of the year. He held everything in a firm grip and took over the ministry of foreign affairs into his own hands early in the year, evidently to forestall any slips in that direction. Although small outbreaks occurred in Morocco they were not sufficient to cause alarm. It should be noted, however, that whereas France took every measure to pacify the natives in Africa after the passing of Abd-el Krim, Rivera still pursued his old policy of repression, which would obviously necessitate the control of North Africa by force of arms.

The leading event in Spain itself during the first half of the year was the reorganization of the army on a smaller scale and the substitution of the merit system for the rule of seniority. Throughout the year there was considerable discussion concerning a National Assembly which the dictator had promised from time to time to call to revise the old constitution. It was first promised for the twenty-fifth anniversary of Alfonso's reign and then was put off until September, the anniversary of Primo de Rivera's coup.

After considerable delay, the assembly was summoned on October 10 by a royal decree. The new assembly was to have no legislative or administrative functions but was to be in the nature of an advisory body to consider propositions put before it by the government or proposed by its own members. the government retaining the right to final action. The signing of the decree by the King threw him definitely on the side of Rivera and against the old-line politicians who were hoping for a return of "the good old days" before 1923. The four hundred members were selected by the government directly or indirectly.

The chief task of the assembly was to be the framing of a constitution, which, according to the wishes of Rivera, was to be a mere skeleton to be filled in by laws. The legislature was to be unicameral and was to consist of permanent and non-permanent members, whose selection depended upon the government. The usual provisions which an Anglo-Saxon considers essential, such as freedom of speech, press, religion and assembly, were conspicuous by their absence.

SPANISH-AMERICAN LITERATURES. Literary works by Spanish-American authors do not reach the United States as promptly or as regularly as one could wish, and as they are published not only in the eighteen Spanish-speaking countries of the western hemisphere, but also in France and Spain, the task of the chronicler is very much complicated. The facts printed here must in no sense be considered as exhaustive; nor must the omission of some countries be taken as evidence that they produced nothing during the year 1927. It means simply that the chronicler received nothing therefrom, although efforts were made to obtain information from every Spanish-American capital.

Poetry is very much alive in Spanish America, and, before we examine the material of all genres that has reached us from the several countries, we call attention to an anthology of recent verse, chosen from the entire continent, *Indice de la nueva poesía americana*. There are three prologues, by Alberto Hidalgo, Vicente Huidobro, and Jorge Luis Borges, respectively. Ten nations (Argentina, Chile, Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Peru, Uruguay, and Venezuela) and 62 poets are represented. Argentina and Chile having 16 each and Peru 14. Mexico is next best, with six. This is a serviceable guide to the new movement, but it is arranged alphabetically under the authors' names, and not grouped by countries. Practically no information is given about any of the poets. The book completes somewhat, and enlarges, the Argentine anthology recently published by Julio Noé, but it is not nearly so valuable as Alfred Coester's *Anthology of the Modernista Movement in Spanish America*, published in 1924, with introduction, biographies and notes.

ARGENTINA. Three national prizes for literature were awarded as follows: First prize (30,000 pesos) to Gustavo Martínez (whose pen name is Hugo Wast) for his novel, *Desierto de Piedra;* second prize (20,000 pesos) to Roberto J. Payró for his novel *El Capitán Vergara;* and third prize (10,000 pesos) to Rómulo D. Carleia, for his *Historia de la Historiografía argentina.* Payró has been successful in various genres. *El falso inca* (chronicle of the Conquest); *El casamiento de Laucha* and *Antigona* (novel); *Ensayos poéticos* and *Scripta* (stories); *Sobre las ruinas* and *El triunfo de los otros* (dramas); and a highly important two-volume work on government, *La Australia Argentina.* Hugo Wast is a very prolific novelist, and his novels have long led the lists of best sellers, despite the fact that the author has never consented to write a line that he could not show to his children.

The faculty of philosophy and letters of the University of Buenos Aires, Institute of Argentine Literature, section of documents, published two interesting dramas—Bartolomé Mitre, *Cuatro épocas* (drama in five acts in prose and verse), and Miguel Ortega, *Lucía de Miranda.*

The following deserve notice even in so brief an article: E. de Ory, *Los mejores poetas de la Argentina;* Soler Daras, *Terremotos líricos y otros temblores;* C. Delgado Fito. *Versos del emigrante;* González Carbalho, *Palabras de retorno* (poetry); E. Bustamente, *Antipoemas;* R. Lascano, *La lámpara del hogar* (poems); P. Herreros, *Poesía pura;* and Fernández Moreno, *El Hijo.* Carlos María Ocantos (former Argentine diplomat, living in retirement near Madrid) published *Tulia*, volume 18 of his *Novelas argentinas.* Ricardo Rojas (author of the *Historia de la literatura argentina*, to which was awarded in 1921 the Grand National Prize for Letters, instituted by the Argentine government) published in 1927 *El Cristo invisible,* whose title is inviting.

Although published in 1924, three interesting volumes are now available: H. H. Dobranich, *Obras*, in the definitive edition (1, *Monólogos*, etc.; 2, *Entre libros y papeles*, and 3, *Celajes de Aurora*).. Argentina laments the loss of her distinguished son Güiraldes, well known for his *El cencerro de cristal*, *Xaimaca*, and especially *Don Segundo Sombra* (considered a formidable monument expressing the serious soul of the pampas).

CHILE. The learned lexicographer and grammarian, Miguel Luis Amunátegui Reyes, published the third volume of his invaluable *Observaciones i enmiendas à un Diccionario, aplicables también à otros*, the first two volumes having appeared in 1924 and 1925. As this veteran scholar had been before the public for more than thirty years, it is of worth to mention some of his outstanding earlier works: *Borrones gramaticales*, *Al través del diccionario i la gramática*, *Críticas*, *i Charlas*, *Mis Pasatiempos*. *La reforma ortográfica*, *En la puerta de la iglesia* and *Artografía razonada.* Another important lexicographical work was by the venerable bibliographer, J. T. Medina. *Nuevos chilenismos registrados en el Diccionario Manual Ilustrado de la Real Academia de la Lengua.* Historical studies also appeared: F. A. Machuca, *Las cuatro campañas de la Guerra del Pacífico*, vol. I; A. Benavides Santos. *Historia compendiada de la Guerra del Pacífico*, 1879–84, and *Seis años de vacaciones, narraciones históricas y anecdóticas de la Guerra del Pacífico;* and Virgilio Figueroa, *Diccionario histórico y biográfico de Chile, 1800–1925.* Pedro Itriago-Chacín treats international affairs in his *En la cátedra*, a mature book, evolved from lectures in Chile's three-year course of diplomacy (established in 1916 for all who would represent Chile abroad) and setting forth sound principles of international law, the history thereof, and its culmination in the Covenant of the League of Nations. M. A. Vittini, *La Paz y la Guerra* (*estudio de exposición y de crítica*) is a keen study aiming at the outlawing of war, and preceded by tributes to two of Hispanic-America's foremost anti-war leaders, the Argentine Juan Bautista Alberdi and the Brazilian Ruy Barbosa. Other belletristic material must have been produced, but notable items received were *Cantos filiales* by the veteran poet, Samuel Lillo; *El habitante y su esperanza*, by P. Neruda; *Al márgen de la poesía*, by F. Donoso G., who thus gathered together a series of critical lectures delivered in 1926 before a Catholic institute in Santiago de Chile; *Dolidamente* (poems) by that exquisite dreamer, Aida Moreno Lagos; and *El triunfo del Dolor*, a volume of beautiful poems by Amado del Valle Riente, already highly esteemed for his *Ramillete infantil*, and especially for his *Crisálidas del corazón*.

COLOMBIA. This land, whose capital, Bogotá, has with reason been called the Athens of South America, had a brilliant literary output both in belles lettres and in scholarship. The following have come to our attention: E. Restrepo, *El tonel de Diógenes;* T. Carrasquilla, *El zarco* and *Ligia Cruz;* R. Botero, *En las tierras del oro;* Armando Solano, *Glosario sencillo;* Manuel de Jesús Andrade, *Diccionario ortológico, analógico, sintáctico, y ortagráfico, o catálogo de voces castellanas cuyo uso puede ofrecer dificultad;* and the young brothers, G. and A. Hernández de Alba, *Estudios históricos*, with prologue by Antonio Gómez Restrepo, presenting them as especially well equipped in the art of heraldry.

COSTA RICA. Max Jiménez, a young writer of extreme sensibility, published some interesting *Ensayos*, and Rogelio Sotela put out *Crónicas del Centenario de Ayacucho.*

CUBA. The well known grammarian, J. A. Rodríguez García, published a well documented study of the life and works of the distinguished littérateur and statesman, *Manuel Sanguily.* Rodríguez García's discourse when he took possession of his chair in the Cuban Academy of History dealt with *La vida y las obras del General Enrique Collazo.* The distinguished jurisconsult D. V. Tejera (hijo) has written upon a wide range of social problems; he published within the year *El matonismo como figura delictuosa, protección de la niñez contra los trabajos inadecuados; Las circumstancias agravantes y las ideas modernas; Orientaciones para la educación de los niños*, and *El hondo problema de la pena de muerte.* Medardo Vitier, a keen thinker in educational matters, published *Lo fundamental; ideas sobre educación.* His earlier works, *La ruta del sembrador, motivos de literatura y filosofía*, and *Enrique José Varona*, were highly praised by such scholars as A. Bonilla y San Martín and R. Menéndez Pidal.

Antonio Iraizoz's *La emoción que nos falta* is an earnest plea for putting more of the fine arts into the education plan of the country, and especially of primary and secondary education. It had been preceded by such important literary works as *Pnyx*, *Ideología de José Martí*, *Lecturas Cubanas*, and *Enrique Piñeyro, su vida y sus obras.* Other things that should be noted are: F. Lles y Berdayes, *El individualismo, ensayo sobre el instinto y la conciencia* (which had been preceded by *La sombra de Heráclito* and *La escudilla de Diógenes*); Renée Méndez-Capote de Solís, *Oratoria cubana* (a delightful book); J. de la Cruz León, *Amiel o la incapacidad de amar* (interesting and beautiful); Néstor Carbonell, *Prosas oratorias;* Irene A. Wright, *Historia documentada de San Cristóbal de la Habana en el siglo XVI*, 2 vols.; and Graziella Barinaga and Ponce de León, *Estudio crítico biográfico de Emilio Bobadilla (Fray Candil)*.

ECUADOR. The following works came to our attention: José Ariel, *Canción de Rosas;* Pablo Palacio, *Un hombre muerto a puntapiés (Cuentos);* Telmo N. Vala, *Labios románticos;* Ricardo Alvarez, *Espigas de la Noche;* and Alfredo Flores y Caamaño, *El verdadero testamento del Gran Mariscal de Ayacucho, y una de las últimas cartas que dirigió a su esposa* (a successful effort to rehabilitate the moral integrity of the Grand Marshal of Ayacucho and the memory of his widow).

MEXICO. From Mexico the following may be mentioned: F. Monterde, *Algunos novelistas mexicanos;* María del Mar, *El alma desnuda;* J. Ramírez Cabañas, *Esparcimiento* (Poesias); J. Ramos Páramo, *El tema trágico;* J. Torres Bodet, *Margarita de niebla;* F. J. Santamaría, *Glosa lexicográfica;* and F. Gómez de Orozco, *Catálogo de la colección de manuscritos de J. García Icazbalceta relativos a la Historia de América* (very important).

PERU. The children of the great "tradicionista," Ricardo Palma, are following worthily in the footsteps of their father. Clemente Palma is well known as a man of letters, and recently he published *Historietas malignas*, as a continuation of his *Cuentos malévolos;* and his daughter, Angélica Palma, has just published in book form *Tiempos de la Patria Vieja* (an historical novel that won the first prize in the competition for historical novels, on the occasion of the centenary of Ayacucho); two of her earlier novels were *Vencida* and *Por senda propia.* Alberto Ureta, already well known for several works of criticism and of verse, especially *Rumor de almas* and *El dolor pensativo*, which were later published in one volume entitled *Poemas*, recently gave us *La desolación romántica y Alfredo de Vigny.* Enrique López Albújar's new book, *Cuentos andinos*, was as favorably received as was his earlier work, *De mi casona.* The outstanding literary event of the year is probably the appearance of the monumental novel *El Pueblo del Sol*, by Augusto Aguirre Morales, who spent ten years of arduous study to prepare himself to write a novel which should be a worthy prose epic, so to speak, of the Incas.

URUGUAY. From Uruguay the following items have come to our attention: F. Gobaira, *Espigas de bronce;* J. M. Delgado, *Metal;* J. P. Bellán, *El pecado de Alejandra Leonard* (stories); J. Navarro Monzó, *De Amós a Jeremías;* and Luisa Luisi (a great force in Uruguayan education), *Poemas de la inmovilidad y canciones al Sol* (which is the best work, thus far, of this versatile and gifted poetess). Uruguay laments the loss this year of two of her most brilliant sons, Javier de Viana, novelist and story-teller, whose best works were *Gaucha* and *Guri*, and Carlos Roxlo, professor, journalist, statesman, lyric poet, and literary historian, whose master works were *Glorias de América*, *Los poetas del Renacimiento*, and the seven-volume *Historia crítica de la literatura uruguayana.*

VENEZUELA. Venezuela continued her scholarly traditions and several learned works are at hand: C. Parra-Pérez, *Delphine de Custine, belle amie de Miranda;* Vicente Dávila, *En-*

comiendas (a splendid continuation to his genealogical investigations and to his *Diccionario Biográfico*); Santiago Montoto, *Colección de documentos inéditos para la historia de Ibero-América;* Fray Froilán de Rionegro, *Actuaciones y Documentos del Gobierno Central de la Unidad de la Raza en el Descubrimiento, Exploración, Población, Pacificación y Civilización de las antiguas Provincias españolas, hoy República de Venezuela* (1486–1600); Blas José Terrero, *Teatro de Venezuela y Caracas;* the author, who lived 1735–1802, was still working on the manuscript when he died; and under governmental instruction the manuscript was placed in the hands of that expert bibliographer and librarian, Manuel Segundo Sánchez; Vicente Lecuna, *Documentos referentes a la creación de Bolivia,* 2 vols.; and Arístides Rojas, *Estudios históricos: Segunda Serie.*

Two literary works have come to our attention, R. Blanco Fombona, *La mitra en la mano* (very highly praised); and A. M. Queremel, a poet of marked personality, *Trayectoria* (a poem). Venezuela lost two of her leading representatives, F. Jiménez Arraiz, poet and essayist, member of the Academia Nacional de la Historia de Venezuela, and librarian of the Library of Congress in Caracas, and Manuel Díaz Rodríguez, a writer whose dominant note, stylistically, was color, and who inspired a whole generation of youth with his novels, chief of which were *Sangre Patricia, Peregrina o el Pozo encantado,* and above all *Idolos Rotos.* See also Philology, Modern.

SPANISH LITERATURE. Again in 1927, the output in the drama seemed to have kept ahead of those of the other branches, while erudition had almost overtaken fiction. In both drama and fiction, however, there seems to be a transition movement from what we have been accustomed to, although the outlines of what it will lead to are not yet clearly discernible. There is a confusion of new names whose real significance cannot be foreseen; dramas in verse are more frequent than for many years past.

Drama. Benavente, by his *La noche iluminada,* a fantasy for children and adults, recalls Shakespeare's *Midsummer Night's Dream;* and the public was delighted with his *El hijo de Polichinela.* The Alvarez Quintero brothers continue unabated their clean, delightful work. We note especially *La cuestión es pasar el rato* (a three-act comedy, called by the critics an "extraordinary work" and the authors' "most forceful" play). P. Muñoz Seca continues with plays filled with riotous verbal quips, as witness *Las inyecciones* (jocular treatment of the glandular theory in modern therapeutics), in collaboration with Jacinto Guerrero. Eduardo Marquina outdid himself with *Fruto benedito* (delicate treatment of the sanctity of motherhood), and *La ermita, la fuente y el río* (one of the greatest successes of the season, with the sheer winged beauty of its mellifluous metrical structure). L. Fernández Ardavín had three successes, *La hija de la Dolores, La cantaora del puerto,* and *Flores y Blancaflor* (beautiful but too exuberant verse treatment of a mediæval legend). M. Linares Rivas was very successful with *¡Mal año de lobos!* Azorín blazed a new trail with his *Brandy, mucho brandy,* while with his beautiful trilogy, *Lo invisible,* he tried still further to develop those super-realistic tendencies that he is importing into Spanish theatrical customs. His *Comedia del arte* is an improvement over his beautiful *Old Spain,* mentioned in the 1926 Year Book. The Machado brothers, Antonio and Manuel, won a clamorous success with *Juan de Mañara,* a new play concerning the legendary Sevillan personage Don Juan.

The following may also be noted: A. Aponte, *Superstición* (notable Celtic trilogy); L. Grajales and F. García Pacheco, *Los diez mandamientos: Retablo escénico* (exaltation of the decalogue, with a scenic fable for each commandment); A. Mori and G. Perrín, *Mujeres* (handled with profound psychology and rare delicacy); J. I. Luca de Tena, *María del Mar;* F. García Lorca, *Mariana Pineda* (exquisite verse drama of the days of Fernando VII); and four new dramatists, all with works of much promise: J. L. Mayral, first appearance as poet, with a comedy in verse, *La jaca torda;* M. Abril, *El Doctor Promoteo;* E. Alvear, *Fuensanta, la del cortijo;* and L. Navarro, *Yo soy un amigo mío.*

Fiction. This year the following well known authors have done notable things: R. del Valle Inclán, *Tirano Banderas* (brilliant picture of tyranny in a tropical Spanish-American republic); R. Pérez de Ayala, *Tigre Juan* (won half the National Prize for Literature); J. Francés, *Rostros en la niebla;* P. Mata, *Más allá del amor y de la muerte* (a new success, and companion piece to his *Más allá del amor y de la vida*); J. Arderius, *La espuela* (original and interesting); A. Martínez Olmedilla, *Una mujer de su casa* (very popular); G. Miró, *El Obispo leproso* (in exquisite literary form and containing firm characterization); and Concha Espina, *Las niñas desaparecidas.* Less well known writers who attracted favorable attention are J. Bernacer, *La novela innovelable;* B. Soler, *Marcos Villari;* G. Corrochano *¡ Mektub !;* Carmen R. Raggio (a young girl), *Tiernos brotes* (charming stories); A. Cases, *Las Hogueras de Israel, la novela de los Hebreos* (successful); E. Mendaro, *La herencia de Mimi* (highly praised); C. Suárez, *Una sombra de mujer* (interesting); F. Arias Abad, *Ráfagas* (beautiful, moral tales for children); B. Alonso, *El dolor de ser bonita;* J. Bruno, *Chipilín;* J. Ortiz de Pinedo, *¡ . . . y la Vida se va!;* María M. de Guitián, *Fatalidad;* J. Díaz Caneja, *Verde y azul;* A. de Sandoval, *Los amores de un cadete;* Consuelo Valcarcel Satteau, *El triunfo de la pasión* (a notable novel with prologue by the Academician Gutiérrez Gamero, himself a novelist); A. Menoyo Portales, *El tesoro de los Monfies;* M. Azaña, *El jardín de los frailes* (a psychological story about the Escorial); E. Giménez Caballero, *Los toros, las castañuelas y la Virgen* (an excellent book by a young writer of great promise), and F. de Cossío, *La Rueda* (in elegant Castilian prose; if the author maintains this style and writes with greater and more human fervor, he may become Spain's leading novelist). Of Juan Valera's *Obras Selectas,* vols. 10 and 11 have appeared, *Dafnis y Cloe* and *Cuentos.*

Poetry. Although not so numerous, the poetic productions were interesting. P. Jara Carrillo won the prize in the national contest for hymns to the coronation of the Virgen de la Fuensanta. The following should also be noted: J. Ugarte, *Glosario lírico de Job;* Dámaso Martínez Vélez, *Los caminos del amor* (a mystic poem); Elizabeth Mulder de Davner, *Embrujamiento;* A. Lázaro, *Confesión;* Trinidad Padilla de Sanz, *De mi collar;* Alberto Lista, *Poesías inéditas* (with a preliminary study by J. M. de Cossio); F. García, Lorca, *Canciones* (exquisite, and promise much, when this versatile poet gets down to work); and E. Prados, *Vuelta* (fine, but the author had not yet found his proper verse medium).

The outstanding poetic event of the year was probably E. Marquina's writing of the poem for the national hymn to be sung to the music of the Marcha Real. Marquina wrote twelve stanzas, each concerning some different phase of Spain's long history. Alfonso XIII had chosen three in particular, although declaring that he liked the entire dozen, and saying that Marquina had marvelously interpreted his thought, that the strophes should be "a cry of affirmation and of faith, unclouded by any political coloring, and devoid of that aggressive form of patriotism which, by stressing characteristics of exclusiveness and antagonism against other peoples, would deprive the hymn of the gentle prerogative of being sung and played under skies not Spanish."

ERUDITION. The most interesting things in the scholarly output of Spain were the following: E. Guzmán, *El Quijote y los libros de caballería;* L. Araujo Costa, *Letras, damas y pinturas;* A. Montoro, *Las mujeres en la historia;* C. Barja, *En torno al lirismo gallego del siglo XIX:* J. B. Trend. *The Music of Spanish History to 1600;* F. J. Santamaría, *Glosa lexicográfica;* Conde de Güell, *Apuntes de Recuerdos, El Poeta Verdaguer;* M. Artigas, *Menéndez y Pelayo* (an important contribution); J. Puyol y Alonso, *Orígenes del Reino de León y de sus Instituciones políticas* and *Adolfo Bonilla y San Martín (1875–1926), su Vida y sus Obras;* F. Rodriguez Marín, *La Fílida da Gálvez de Montalvo;* J. Subirá, *La música de la Casa de Alba, Estudio histórico y biográfico;* Marqués de Villa Urrutia, *Mujeres de antaño, La reina María Luisa, esposa de Carlos IV;* A. S. Corbière, *Juan Eugenio Hartzenbusch and the French Theatre; Clasicos Castellanos,* vols. 70–81, inclusive.

ROYAL ACADEMY. A royal decree effected an important reorganization, the membership being increased to 42, eight of whom shall represent the non-Castilian languages of Spain. To fill these chairs the following scholars were elected: Catalan and its dialects (Valencian and Majorcan), Antonio Rubió y Lluch, Engenio d'Ors, Luis Fullana y Mira, and Lorenzo Riber; Gallegan, Armando Cotarelo y Valledor and Ramón Cabanillas; and Basque, Julio de Urquijo and Resurrección María de Azcue. Two other vacancies were filled by electing Antonio Machado y Ruiz, poet and dramatist, and the Conde de Gimeno, eminent statesman and physician. The Academy awarded the following prizes: Premio Fastenrath to Antonio Porras, for his novel, *El Centro de las almas;* Premio Mariano de Cavía, to the journalist, Manuel Siurot; and Premio Chirel to Emiliano Ramírez Ángel for a collection of articles on customs.

NECROLOGY. Spanish letters suffered heavily both at home and abroad. From the Academy's ranks went Daniel de Cortázar and Miguel Echegaray, a dramatist, like his greater brother José. (See YEAR BOOK, 1916.) Other losses were José Rodao, Segovian poet; Patrocinia de Biedma, poetess; F. Pérez Mateos, editor of *La Época;* Rafael Gasset, ex-minister of the Liberal party and director of *El Imparcial;* Julio Cejador y Frauca, philologist. Alejandro Pérez Liugin, novelist, and Antonio Paz y Melia, humanist (see PAZ Y MELIA, ANTONIO). Losses abroad will be found under SPANISH-AMERICAN LITERATURES. See also PHILOLOGY, MODERN.

SPECTROSCOPY. See ASTRONOMY; CHEMISTRY, *under General Chemistry;* PHYSICS.

SPIRITUALISM. See PSYCHICAL RESEARCH.

SPIRITUALIST ASSOCIATION, NATIONAL. An organization maintaining the religious belief that the spirit world forms a counterpart of the world of common experience. Spiritualism originated as a doctrine in the writings of Andrew Jackson Davis, 1845. Its local groups came into existence in considerable numbers in many parts of the United States between 1850 and 1872. The national organization of these groups took the form of the present association in 1893. In 1927 it comprised 22 State associations and many local societies and churches in territory outside the State organizations. The general activities of the organization are carried on through four bureaus: that of Progressive Lyceums (Sunday Schools); the Bureau of Phenomenal Evidence; the Bureau of Propaganda; and the Bureau of Education. The organization conducts the Morris Pratt Institute, Whitewater, Wis., and issues the periodicals *Progressive Thinker, Banner of Life, Reason,* and *The National Spiritualist.* Officers in 1927 were: president, Joseph P. Whitwell, St. Paul, Minn.; secretary, the Rev. Harry P. Strack, Washington, D. C.; treasurer, F. W. Constantine, Buffalo, N. Y. Headquarters are in Washington, D. C.

SPITZBERGEN. See WEST SPITZBERGEN; also SVALBARD.

SPLEEN. See CHEMISTRY, under *Biochemistry.*

SPORTS. Articles covering the activities in the various sports during 1927 will be found under such titles as ATHLETICS, BASEBALL, FOOTBALL, GOLF, RACING, TENNIS, etc.

SQUASH. See RACQUETS.

SQUIRE, WILLIAM BARCLAY. British musicologist, died at London, January 14. He was born at London, Oct. 16, 1855. After some years of study at Frankfort-on-the-Main he graduated, in 1879, at Cambridge, and was admitted to the bar in 1883. Two years later, he definitely abandoned law when he was appointed keeper of the printed music in the British Museum. This position he filled with signal success until his retirement in 1920, but he retained his connection with the museum as honorable curator of the Royal Music Library. His entire life was spent in musical research. Of several valuable catalogues prepared under his direction the most important is the *Catalogue of Old Printed Music in the British Museum* [1487–1800], which appeared in two volumes (1912).

STALKER, JAMES. Minister of the Free Church of Scotland, died in Florence, Italy, in February. He was born at Crieff, Scotland, Feb. 21, 1848, and was educated at the universities of Edinburgh, Halle and Berlin. He held pastorates at Kirkcaldy and Glasgow, 1874–87; delivered the Lyman Beecher lectures on preaching at Yale University, 1891; was lecturer at Richmond, Va., 1914, and was professor of church history in the United Free Church, Aberdeen, 1902–26. His works were widely read by English-speaking people, and some of them were translated into several languages. Among them are: *The Life of Jesus Christ* (1879); *The Life of Saint Paul* (1884); *The Preacher and his Models* (lectures delivered at Yale) (1891); *The Ethics of Jesus* (1909); *Know Thyself* (1914); *Christian Psychology* (1915); *The Beauty of the Bible* (1921).

STANFORD UNIVERSITY. A non-sectarian, coeducational institution of higher education at Stanford University, Cal.; founded in 1891 in memory of Leland Stanford, Jr. The enrollment for the autumn quarter of 1927 was 3434, and for the summer quarter 1393. The faculty numbered 493. The productive funds of the university amounted to $29,228,632, and the budget income for the year, including fees, was $2,652,174. The library contained 475,037 volumes (including the Hoover War Library). Gifts received during the year were: For research and scholarships, $215,513; special funds, $3,880; for new buildings, $27,005; for endowment $155,582. President, Ray Lyman Wilbur, M.D., Sc.D., LL.D.

STANTON, FRANK LEBBY. American poet and song writer, died January 7, at Atlanta, Georgia. Born at Charleston, S. C., Feb. 22, 1857, he began to write poetry at the age of 11. He was early apprenticed in a printing office. While employed as copy boy for the *Savannah News* he attracted the attention of Joel Chandler Harris by verses which he wrote in odd moments. In 1880 he joined the staff of the *Atlanta Constitution* for which he was columnist and song writer during the remainder of his life. He wrote "Mighty Lak' a Rose," "Just A-Wearyin' for You" and "Li'l Feller." The first collection of his poems appeared in 1892 under the title of *Songs of the Soil;* other collections were *Comes One with a Song* (1899); *Songs from Dixie* (1900); *Up from Georgia* (1902); and *Little Folks Down South* (1904). He was made poet laureate of Georgia by proclamation of Governor Walker in 1925. Most of his songs, written in the dialect of the old Southern negro, are a faithful record of the folklore and poetry of the old-time negro.

STARS. See ASTRONOMY.

STATE BANKS. See BANKS AND BANKING.

STEAM. See BOILERS.

STEAMBOAT INSPECTION SERVICE, UNITED STATES. See SAFETY AT SEA.

STEAM ENGINES. The status of the reciprocating steam engine for stationary service remained practically unchanged. The number of builders, once large, had become relatively small, two more having gone out of business during 1927. Yet the steam engine had by no means passed out of the picture in the face of strong competition from the steam turbine, the oil engine and the central station. According to the latest U. S. industrial census report, out of a total of nearly 30,000,000 primary horse power installed in the manufacturing plants of the country 11,500,000 were in steam engines. A considerable number, in sizes up to 500 horse power, were built in 1927 for service in industrial plants, public and other buildings, etc. Among these the uniflow type predominated, with an occasional installation of the Corliss type to meet special conditions or to satisfy the preference of the purchaser.

STEAM TURBINES. In central station practice the trend was toward fewer and larger generating units. Steam turbine generators of 50,000 kilowatts and over were no longer the exception in the United States, but were becoming quite the rule in new stations and extensions to existing plants wherever the system load would permit. In Europe, while there was a noticeable trend toward larger units, few compared in size with those in the United States, chiefly because the system loads were smaller, and to some extent probably because of an apparent hesitancy in placing so much capacity in single units.

The 208,000-kilowatt cross-compound 1800-r.p.m. unit under construction for the State Line station, at the southern end of Lake Michigan, near Hammond, Ind., remained the largest yet undertaken. A 165,000-kilowatt cross-compound machine was being built for the Philo station of the Ohio Power Co., and one of 160,000 kilowatts for the Hell Gate station in New York. The New York Edison Co. had placed an order for a 160,000-kilowatt tandem-compound unit which would represent the largest capacity on a single shaft and included a single generator that would have two sets of windings, each delivering 80,000 kilowatts. It will operate on 25 cycles at 1500 r.p.m. and will be installed in the new East River station. Other outstanding units under construction, or being installed, include a 110,000-kilowatt cross-compound 1800-r.p.m. two-cylinder machine for the Brooklyn Edison Co., a 104,000-kilowatt tandem cross-compound and a 91,500 cross-compound for the Crawford Ave. station in Chicago, two 94,000-kilowatt tandem-compound turbines for the Southern California Edison Co., a 65,000-kilowatt single-cylinder 1800-r.p.m. machine for the Edgar station of the Edison Electric Illuminating Co. of Boston, and a 75,000-kilowatt single-cylinder turbine generator for the Huntley station in Buffalo, the last named representing the largest capacity yet undertaken in a single cylinder. The Detroit Edison Co. had ordered two 50,000-kilowatt machines, and the Superpower Co. of Illinois, one of 55,000 kilowatts for its station at Pekin, Illinois.

There was a noticeable tendency no longer to confine the large units to the lower speeds but to go up to 1800 r.p.m. in these sizes in many cases. The largest turbine generators to be built in the United States for export were two 52,500-kilowatt tandem-compound units shipped to Buenos Aires.

Several of the foregoing units were to operate on 550 to 600 pounds steam pressure, and 700 to 750 deg.; all were designed for stage bleeding and two or three for operating on the reheating cycle. The use of bleeder heaters results in lower heat consumption. During the year the first turbine unit to employ steam for reheating went into service at the Crawford Ave. station in Chicago. Improvements in governing devices continued, and several companies were experimenting with chromium and nickel-chromium corrosion-resistant steels for turbine blading. In the range of extremely high pressure a 10,000-kilowatt, 1200-pound turbine went into service at the Edgar station, and one of 7,000 kilowatts, 1200 pounds, at the Lakeside station in Milwaukee. This was in addition to the

3,000-kilowatt, 1200-pound machine that had been in service for two years at Edgar station.

A 10,000-kilowatt mercury vapor turbine had been built for the South Meadow station of the Hartford Electric Light Company.

Higher steam pressures were coming into use in industrial power plants, accompanied by higher back pressures where the turbines exhaust steam to process. One 750-pound, 4750-kilowatt turbine, exhausting at 125 pounds, went into service, and a number were operating at 350 to 400 pounds with exhaust at 40- to 90-pound back pressure. Bleeder turbines also have been highly developed for industrial service and were installed in relatively large numbers. One interesting machine of this type reported bled its whole steam flow for process use and then took 75 per cent of the original flow at atmospheric pressure and expanded to the final exhaust vacuum. This was to be installed in an oil refinery.

European practice tended toward the employment of a greater number of stages with small pressure drops in order to attain economy. Due to improvements in design, the high-pressure stages of some of these European turbines showed as great, if not greater efficiency than the low-pressure stages. In Germany the outstanding installation was the new Rummelsburg station of the City of Berlin, which contained three 70,000-kilowatt cross-compound four-cylinder turbine generators operating on 463 pounds steam pressure and a temperature of 750 degrees. Several 40,000-kilowatt units were also operating in German power stations.

In England the extension to the Barking station was to employ a high-pressure unit, operating somewhat along the lines of those at the Edgar and the Lakeside stations in the United States. A 2500-kilowatt turbine would take steam at 1000 pounds, 800 degrees, and exhaust into the regular station main at 210 pounds. A 25,000-kilowatt unit was purchased for operation at the lower pressure, bringing the capacity of the station up to 54,000 kilowatts. Several other machines of 25,000-kilowatt capacity and one of 38,000 kv.a. had been constructed for British stations and the Ljungstrom Company of Sweden, through its British licensee, the Brush Company, had constructed a 12,500-kilowatt Ljungstrom turbine, which represented the largest radial-flow turbine built to the end of the year, although one of 40,000 kw. had been designed.

In France, 50,000-kilowatt turbines were in operation at Gennevilliers station; and the 750-pound, 800-degree turbines at Langerbrugge station in Belgium had been in successful operation for some time, and three more machines were on order.

STEEL. See Iron and Steel; Chemistry, Industrial.

STEIN, Hermann von. German general, died at Lehnin, Brandenburg, May 27. He was born in Wedderstedt, Prussia, in 1854. At the outbreak of the World War he held the position of quartermaster general of the German forces, a post which he turned over to Ludendorff in October, 1914. General von Stein then commanded the reserve army corps, until his appointment as Prussian War Minister in October, 1916; he remained in office until October, 1918. Relieved of his post, the retired leader got himself into new trouble by the publication of his memoirs, which roused the ire of high Austrian officers.

STELLAR EVOLUTION. See Astronomy.

STENHAMMER, Wilhelm. Swedish composer and conductor, died at Stockholm, November 20. He was born there, Feb. 7, 1871. After graduation at the Stockholm Conservatory in 1892, he continued his studies under Heinrich Barth in Berlin, and he began his career as a concert pianist. From 1897 to 1900 he was conductor of the Philharmonic Society of Stockholm, and during the season of 1900–01 he was second conductor at the Royal Opera there. After a tour of Germany and Italy, he settled in 1907 in Goteborg as conductor of the Korforening and the Orkester-forening, holding both positions till his death. His works include three operas, *Tirfing* (Stockholm, 1898), *Das Fest auf Solhaug* (Stuttgart, 1899; in Swedish in Stockholm, 1903), and *Chitra* (Göteborg, 1921); a Symphony in F; two piano concertos; a violin concerto; four string pieces for quartets, and several large works for chorus with orchestra.

STERILIZATION, See Child Welfare.

STERNBERG, Dr. Lev. Russian-Jewish scholar, died in Moscow August 17. Born in Moscow in 1861, he received his education at the University of St. Petersburg. Dr. Sternberg acquired world-wide fame as an ethnographer and anthropologist. He was professor at the University of Leningrad and a member of the Russian Academy of Science. He took an active part in the Russian liberation movement, and in his early youth was sentenced by the Czarist government to serve three years in a cell and ten years on the Island of Sakhalin.

STEVENS, Walter Leconte. American physicist, died at Lexington, Va., December 29. He was born at Macon, Ga. in 1846, and graduated at the University of South Carolina in 1868. He studied at Strassburg, Berlin, and Zurich, 1890–92, and received the honorary degree of Ph.D. from the University of Georgia. Dr. Stevens was head of the department of physics at Rensselaer Polytechnic Institute, Troy, N. Y., 1892–98, and then at Washington and Lee University, until 1921, when he retired from active teaching. He was the author of a revision of *Steele's Physics* and of contributions to encyclopædias and scientific magazines.

STEVENS INSTITUTE OF TECHNOLOGY. A non-sectarian institution for the technical education of men, at Castle Point, Hoboken, N. J., founded in 1870. The enrollment for the autumn of 1927 was 446 and for the summer session of the same year 98. There were 50 members on the teaching staff. The productive funds amounted to $2,908,042, and the income for 1926–27 was $280,297. The library contained about 19,000 volumes. During the year the Institute received $54,762 in gifts. The acting president was Dr. Frank L. Sevenoak, taking the place of Dr. Alexander C. Humphreys (q.v.), whose resignation took effect June 5, 1927, and who died August 14.

STOCKS AND BONDS. See Financial Review; Railways.

STOKES, Adrian. British pathologist, died at Lagos, West Africa, September 19. He was born in Lausanne, Switzerland, in 1887, and was educated at Trinity College, Dublin, where he obtained the degree of M.D. in 1911. Becoming connected with the teaching staff of Dublin University, he carried on extensive investigations in pathology. Through the World War he served in the Royal Army Medical Corps. His discovery that jaundice was carried by rats gave him an international reputation. He visited Africa in 1920 as a member of the Rockefeller Commission on Yellow Fever. In 1922 he was appointed Professor of Pathology at London University. Early in 1927 the Rockefeller Commission in Africa invited Dr. Stokes to go there again. By means of experiments on chimpanzees he had made definite and substantial progress toward solving the problem of the transmission of yellow fever and its causative organism, when he himself was struck down by the fever. See Yellow Fever.

STONE. The U. S. Bureau of Mines estimated the total stone sold and used by producers in the United States in 1926 at 124,496,360 short tons, valued at $188,308,590, or about 7 per cent more in quantity and 8 per cent more in value than in 1925, when the totals were 115,851,370 tons and $174,216,792, respectively. In 1926 production (in short tons) with value, included the following: Granite, 9,330,390 tons, valued at $32,044,523; basalt and related rock (trap rock) 12,977,740 tons, $15,950,302; marble, 536,170 tons, $14,167,480; limestone, 91,887,900 tons, $109,252,299; sandstone, 4,978,530 tons, $11,149,029; and other stone, 4,758,630 tons, $5,744,957. On the basis of use the principal item in 1926, as in previous years, was crushed stone, where the production had a value of $87,872,014, followed by building stone, $39,922,851, furnace flux (limestone and marble) $18,049,102; monumental stone, $14,580,929; rip-rap $4,652,717; manufacturing industries, $4,376,026; curbing, $4,303,280; paving block, $3,399,602; refractory stone, $1,925,832. The principal building stone used in the United States in 1926 was limestone, amounting to 18,537,950 cubic feet, valued at $20,391,579, followed by granite with 8,181,910 cubic feet, $6,883,513; marble, 2,867,950 cubic feet, $9,419,939, and sandstone, 3,346,550 cubic feet, $3,154,207.

In 1926 the imports of marble, breccia and onyx amounted to 863,219 cubic feet, valued at $1,783,767, as compared with 954,093 cubic feet, valued at $2,530,806 in 1927. The exports of stone from the United States in 1926 had a total value of $1,583,245, which included marble blocks and other building or monumental stone to the value of $687,115 and other manufactures of stone to the value of $896,130. See Chemistry, Industrial.

STONE, Ellen Maria. American missionary teacher, died at Chelsea, Mass., December 13. She was born at Roxbury, Mass., in 1846. As a young woman she taught school, and in 1879 became a Congregational missionary in the Near East, serving in Bulgaria and Macedonia. In 1901 Miss Stone was set upon by brigands in Macedonia and carried into captivity. Word was received at the American Legation in Constantinople that unless a ransom of $110,000 was paid Miss Stone would be killed. The news created a wave of excitement in the United States and a popular subscription was begun to raise the ransom. After being held for six months Miss Stone was released. She returned to the United States in 1902, and wrote and lectured on her experiences, to raise money for foreign missions.

STONE AGE. See Anthropology, under *Prehistory.*

STRACHEY, stră′chĭ, John St. Loe. English author and editor, died in London August 26. He was born in Somerset, Feb. 9, 1860, the second son of Sir Edward Strachey, and was educated at Balliol College, Oxford, later reading for the bar in London. He decided to devote himself to journalism, in which he spent his entire life. At first he wrote for the *Saturday Review*, the *Standard*, the *Economist*, and other papers and magazines, and in 1886 became an editor of the *Liberal-Unionist.* From 1896 to 1897 he was editor of the *Cornhill Magazine*, and about this time established a connection with the *Spectator*, for which he had reviewed books. Later he became its editor and proprietor, a connection he maintained until December, 1925, when ill health caused his retirement, though he continued to write for that journal intermittently until his death.

Mr. Strachey was a champion of free trade in the early days of the Liberal-Unionist party, in opposition to Joseph Chamberlain, and was known as a "Democrat Imperialist." He also believed in the work on behalf of English-speaking coöperation and in the friendship of the British commonwealth with the United States of America. He frequently visited the United States and Canada, being enthusiastically received. In 1925 he received the honorary degree of Litt.D. from Columbia University. His writings included: *From Grave to Gay; The Manufacture of Paupers* (1907); *Problems and Perils of Socialism; The Practical Wisdom of the Bible* (1908); *A New Way of Life* (1909); *The Adventure of Living* (1922); *Economics of the Hour* (1923); *The Referendum* (1923); *The River of Life* (1924); *The Madonna of the Barricades* (1925); and *American Soundings* (1926).

STRAITS SETTLEMENTS. A British crown colony in Malaysia, consisting of Singapore, Penang (with Province Wellesley and Dindings), and Malacca. The area is approximately 1600 square miles; population, according to the census of 1921, 883,769; estimated in 1925, 976,818. The estimates for the various parts in 1925 were as follows: Singapore, 217 square miles, with 485,091 inhabitants; Penang (with Province Wellesley and Dindings), 280 square miles, with 319,337 inhabitants; Malacca, 720 square miles, with 172,390 inhabitants. In 1925 there were 214,692 immigrants from China and 70,198 from Southern India. The movement of population in 1925 was: Births, 31,665; deaths, 27,106. The seat of the government is Singapore. In 1925 there were 263 schools (all government-aided), with an enrollment of 41,349, and an average attendance of 38,689. The chief interest is commerce, mostly transit trade (the ports are free from customs duties). The centre of trade is Singapore. The accompanying table from the *Statesman's Year Book* for 1927 shows exports and imports, exclusive of treasure, in 1925:

	Imports 1925 £	*Exports 1925* £
Singapore	116,844,744	104,982,834
Penang	36,967,407	35,681,330
Malacca	5,123,615	8,818,882
Labuan	474,721	515,111
Christmas Islands	57,844	208,108
Dindings	119,762	480,981

The chief imports in that year, according to value, were: Para rubber, tin ore, rice, cotton piece goods and yarn, tobacco, cigars, and cigarettes, sugar, and dried and salted fish. The chief exports, also according to value, were: Para rubber, tin, copra, pepper, preserved pineapples, tapioca, and sago. In 1925 the revenue was £6,282,612 and the expenditure £6,719,295. The total number of merchant vessels entered at the ports of the colony in the same year, exclusive of native craft, was 10,650, with a tonnage of 17,532,906 tons; native craft, 31,901 of 1,101,647 tons. The number of vessels cleared was 10,637 of 17,499,221 tons; native craft, 33,012 of 1,148,839 tons. In 1926 the total tonnage entered and cleared at all ports was 38,028,630 tons.

The administration is under a governor, aided by an executive council of official members, and a legislative council of official and unofficial members, the latter being nominated or selected by the chambers of commerce of Singapore and Penang. Governor at the beginning of 1927, Sir Laurence N. Guillemard (also High Commissioner for the Federated Malay States and Brunei, and British Agent for North Borneo and Sarawak). On Mar. 24, 1927, Sir Hugh Clifford, Governor of Ceylon, was appointed Governor. Under the administration of the Straits Settlements are the Christmas Islands (q.v.), annexed in 1900; Cocos or Keeling Islands, annexed in 1903; and the colony of Labuan, annexed Jan. 1, 1907.

STREAM POLLUTION. See Sewerage and Sewage Treatment.

STREETS. See Roads and Pavements.

STREETS AND STREET EXTENSION. See City Planning.

STRIKES AND LOCKOUTS. Coal Strike. The outstanding industrial conflict of the year 1927 in the United States was the strike of bituminous coal miners in the central competitive field, including the States of Illinois, Indiana and Ohio, and western Pennsylvania. The strike began April 1, and involved 200,000 men. The strike followed the failure to renew the Jacksonville agreement, made in February, 1924, which provided for: (1) Recognition of the wage scale contracts set up between the operators and the United Mine Workers of America; (2) the calling of another conference three years later. At the 1927 conference held at Miami in February the operators insisted upon wage reductions, while the miners demanded a renewal of the prevailing contracts for two years. Failure to agree ended in the strike. As the strike progressed it became evident that mining operations were being affected in at least 10 States, Illinois, Pennsylvania, Ohio, Indiana, Arkansas, Kansas, Oklahoma, Missouri, Iowa, and West Virginia.

The United Mine Workers gave its consent to the resumption of work where the operators were willing to accept the Jacksonville agreement, and such arrangements were effected in certain of the districts. District 11, in Indiana, resumed work in the middle of April; other agreements were reached with 88 mines in Illinois, 62 in western Pennsylvania, 45 in Iowa, 24 in Kansas, etc. Conferences affecting the central Pennsylvania field, held at Philadelphia in June, failed and the men there, too, went out.

The first attempt at public participation toward a settlement came when Governor Donahey of Ohio, on August 2, sought to enlist the aid of the Governors of Indiana and Illinois toward reconvening the conference of miners and operators. The courts entered the scene when an injunction against the miners of southeastern Ohio was issued August 15, restraining them from interfering with the operations of the mines, some of which were running at only 5 per cent capacity. On August 30, another injunction was issued against the District 2 miners of central Pennsylvania. On the other hand, Governor Hamill of Iowa, on September 1, for the third time rejected the request of Iowa operators for the dispatching of State troopers to protect non-union miners who were attempting to work some of the mines.

On October 1 it was reported from Chicago that both sides had reached an agreement affecting the State of Illinois. This meant that 72,000 men were to return to work after a strike of six months. The declaration of truce was followed immediately by similar ones in Iowa, Indiana and the district embracing Kansas, Missouri, Oklahoma and Arkansas. The chief point of agreement was the resumption of work on the basis of the Jacksonville wage rate of $7.50 per day, pending a study to be made by miners and operators of the Illinois coal situation. The report was to be submitted to miners and operators jointly on Feb. 7, 1928, when a new wage scale and working conditions were to be prepared.

The Indiana agreement was similar to the one reached in Illinois. These events, with those of April, left only the miners of Ohio and western Pennsylvania still out.

The course of the strike was attended by surprisingly few disorders. Towards the end of the year, however, much bitterness was occasioned among union men by the effective aid being rendered the operators through the injunction. One of the most sweeping court orders of this kind was the one handed down by Judge J. F. Schoonmaker, at Pittsburgh, September 30, October 11, on the application of the Pittsburgh Terminal Coal Corporation. This restrained the men: (1) From occupying the company houses; (2) interfering in any way with the operations of the company's non-union mines. (See articles Labor and Trade-Unions for fuller discussions.) The order aroused much indignation. Affairs were at this stage when the year closed.

Colorado Strike. Another important strike broke out in Colorado, October 11, when the International Workers of the World called out 4000 miners for a "flat scale of $8.50 a day for all classes of mine workers, a six-hour day and a five-day week." Disorders began at once. A large number of local I. W. W. leaders were arrested in the southern field, and this was followed by the cessation of picketing. Newspapers then reported the resumption of operations on the part of a number of mines.

On November 21, however, disorders broke out in the northern field. A group of miners, advancing on the Columbine mine, near Denver, was fired upon by mine guards and State police, and five persons were killed and 20 wounded. The State National Guard was dispatched to the area by the Governor and the military commander was given the right to declare martial law if he saw fit. By the end of the year no settlement had been made.

Other Outstanding Strikes. On July 8, in

Chicago, some 3000 tank-wagon drivers and filling-station attendants went on strike for higher wages. In a day the strike was settled. This was interesting in view of the fact that the tying up of a comparatively minor industry caused such acute distress that public opinion virtually compelled the cessation of hostilities.

On August 29, in Chicago, a strike of motion-picture operators closed 350 or more theatres, because of the failure of one of the theatres to employ the required number of operators. It ended in a compromise.

On September 7, 6000 New York truckmen went out on strike for a wage of $45 and an eight-hour day. In a few days a settlement was reached whereby the wage increase was granted. The men gave up the eight-hour day demand as well as a demand for $1.20 per hour (instead of $1) for overtime.

On October 1 began a strike of glass workers in a number of States. The strikes involved largely the American Window Glass Co., the Libbey-Owens Sheet Glass Co., and a group of independent cylinder machine manufacturers. The workers demanded wage increases; the employers countered with demands for wage reductions. By October 6, the workers and officials in the American Window Glass Co. had reached an agreement providing for the renewal of the old wage scale. However, "for every two points the selling price is raised . . . the workers are to get one point advance in wages."

CANADA. The results of a study made by Ben M. Selekman for the Russell Sage Foundation of the working of the Canadian industrial disputes investigation act were published in *Postponing Strikes*. The report found that conciliation was much more effective than prohibiting legislation in settling strikes. Under the Canadian system 536 disputes were handled by boards set up to consider particular strikes, and of these 490 were amicably settled or averted. In 425 other strikes the act was completely ignored. This was the history of 18 years.

In 1927 in the Dominion of Canada, 77 strikes were in progress, involving 598 employers, 24,142 employees, and 296,811 days lost. In 1925, when there had been 83 strikes and 25,796 strikers the total number of days lost was 1,743,996. For Japan, in 1926, there was reported a total of 1005 disputes involving 100,000 workers. See also UNEMPLOYMENT, for British strikes in 1927.

STUDENTS IN UNIVERSITIES AND COLLEGES. See UNIVERSITIES AND COLLEGES.

STUDY, COURSES OF. See EDUCATION.

STYRIA, stĭr′ĭ-ȧ. A crownland of Austria before the collapse of the Austro-Hungarian Empire; the greater part of Styria was retained in the new republic of Austria after the treaty. Area before the war, 8862 square miles, with a population of 1,441,157 (as estimated on Dec. 31, 1910). Area and population, according to the census of Mar. 7, 1923, 6323 square miles and 978,845 inhabitants.

SUAREZ, MARCO FIDEL. Former president of Colombia, died at Bogotá, April 4. He was born in Hatoviego, Apr. 23, 1855, and educated at Antioquía Seminary. After holding several posts in the government, he was elected president of the Republic in 1918. A controversy between President Suarez and the Chamber of Deputies arose in November, 1921, and his resignation followed.

SUBMARINE BOAT. See NAVAL PROGRESS.

SUBWAYS. See RAPID TRANSIT.

SUCHER, suk′ēr, ROSA. Austrian dramatic soprano, died at Eschweiler, Germany, April 19. She was born at Velburg, Feb. 23, 1849. After completing her musical education at the Königliche Musikschule at Munich, she began her career, under her maiden name of Hasselbeck, as a church singer in Freising. A successful operatic début at Treves, in 1873, was followed by engagements in Königsberg, Berlin, Danzig and Leipzig, in which last-named city she was married, in 1877 to the eminent conductor Josef Sucher. Under his direction she developed from a charming interpreter of youthful rôles into one of the world's greatest Wagnerian singers. After her husband's death in 1908 she settled in Vienna as a teacher. She published her memoirs, under the title *Aus Meinem Leben* (Leipzig, 1914).

SUDAN, ANGLO-EGYPTIAN. A territory in the Nile region of Africa, extending south from Egypt to British East Africa and the Belgian Congo; bounded on the east by the Red Sea, Eritrea, and Abyssinia, and on the west by French Equatorial Africa; under British authority. Area estimated at 1,014,400 square miles; population in 1925 estimated at 6,469,041. Capital, Khartum, with a population of 30,797; other cities, Omdurman, 78,624; Khartum North, 14,319. On Jan. 1, 1926, the elementary, vernacular schools numbered 90 with about 7900 pupils; there are also 10 primary schools.

The Sudan is the source of 85 per cent of the world's supply of gum arabic. Exports of Sudan gum reached $3,306,000 in the first eight months of 1926. Durra, or millet, is the chief food crop of the Sudan, so important that in some of the more remote districts durra prices control those of other commodities. The average crop is about 194,000 tons. Since this vital crop is a "rain crop," the natives' prosperity depends considerably upon the rainfall. Its lack was felt particularly in the 1925–26 season, reducing production to 75,000 tons. With the development under the Sudan Plantations Syndicate of the great Gezira irrigation project in the triangle between the Blue and White Nile Rivers south of their junction at Khartum, interest in cotton growing has had a great impetus. Total seed cotton production in the 1925–26 season amounted to 132,000,000 pounds of sakelleridis, 16,000,000 pounds of American irrigated, and 10,000,000 pounds of American rain-grown cotton. The estimated production of ginned cotton in the 1926–27 season was about 26,000 tons. Other important products of the country are senna, sesame, dates, groundnuts, and colocynth pulps. Vegetable ivory and real ivory are also shipped from the Sudan. Imports in 1927 totaled £E6,155,310 and exports and reëxports £E5,229,420, as against £E5,574,400 and £E5,190,500, respectively, for 1926. Great Britain easily leads in Sudan's foreign trade, buying over three-fourths of its exports and supplying nearly one-third of its imports.

The budget estimates for 1926 balanced at £E5,210,000. The railroad mileage is approximately 1800, and there is regular service by government passenger and cargo steamers for about 2500 miles on the Nile and its tributaries. Under a convention between the British and Egyptian governments signed at Cairo, Jan. 19, 1899, the region south of the 22nd parallel of latitude is administered by a governor-general appointed by the Egyptian government with the assent of Great Britain. The Sudan has been divided into 15 provinces, each under a governor. Since 1910 the governor-general has been assisted by a council. Governor-general in 1927, Sir John L. Maffey.

SUEZ CANAL. A new record was established in 1927 in both the number of ships and the tonnage passing through the Suez Canal, when 5544 ships were reported, with a net tonnage of 28,961,707, as compared with the previous high records of 5373 vessels in 1912 and 26,761,935 tons, in 1925. A comparison of the average sizes of vessels in 1927 and 1926 showed that there was a slight decrease in 1927, when the vessels averaged 5225 tons, as against 5233 tons in 1926. These figures, however, were considerably above the 1925 average tonnage, which was 5014. The receipts for 1927 from tonnage totaled 203,940,000 francs, as against total receipts of 183,863,000 francs in 1925. Receipts from passenger traffic totaled 3,175,000 francs in 1927 as compared with 2,642,000 in 1926, while miscellaneous receipts were 1,351,000 francs, making a total of 208,651,000 francs for 1927.

The accompanying table [a] gives the Suez Canal commercial traffic statistics by flags for the year ending Dec. 31, 1926.

Flag	*Number of transits*	*Net tons*
American	116	709,666
Belgian	6	21,748
British	2,744	14,968,938
Chinese	1	1,465
Danish	75	331,392
Dutch	544	2,858,944
Egyptian	6	8,644
Ecuadorian	2	3,226
Finnish	7	22,189
French	389	1,785,926
German	424	2,153,878
Greek	28	77,406
Italian	332	1,347,807
Japanese	160	946,284
Jugo-Slavian	2	8,374
Norwegian	112	492,054
Panamanian	1	13,324
Russian	7	44,021
Sarawakian	1	554
Spanish	16	48,821
Swedish	57	265,776
Total	4,980	26,060,377

The statistics for east-bound and west-bound freight cargoes in 1926 showed that although there was some decrease in the east-bound business, the west-bound traffic, on the contrary, showed an increase of over 1,000,000 tons, a result all the more satisfactory in view of the fact that the passage of English sea-coal was reduced, because of the strike, by more than 400,000 tons. The strike brought about the shipment through the canal of more than 200,000 tons of coal from such sources as Bengal, southern Africa, Australia and Japan.

Late in the year the Suez Canal Company announced a reduction of 0.25 franc in canal tolls, effective Apr. 1, 1928. From that date tolls were to be collected at 7 gold francs per net ton Suez Canal measurement for laden ships, and at 4.50 gold francs for ships passing through the canal in ballast. (One gold franc equals $0.193.)

SUGAR. The world's sugar production for the season 1927–28, as estimated by Willett & Gray Jan. 5, 1928, was 24,892,550 tons, compared with 23,590,077 tons in 1926–7, and 24,583,909 in 1925–26. Of the total production in 1927–28, sugar from cane constituted 15,809,550 tons, compared with 15,900,329 in 1926–27; and beet sugar 9,083,000 tons, compared with 7,689,748 in 1926–27.

Floods in Louisiana reduced the sugar-growing area and raised the serious question of insuring seed for planting in the flooded sections in the Fall of 1927. To protect the crop partly from the ravages of the borer, the U. S. Department of Agriculture turned over an appropriation of $50,000 for dusting by airplane, adequate to cover about 5000 acres. The production of sugar from cane in Louisiana was only 55,000 tons, which was somewhat more than in the preceding season and compared with 124,447 tons in 1925–26. As usual, Cuba led all other countries in sugar production, the amount reported being 4,000,000 tons. In the previous year a restriction to 4,500,000 tons was placed on the crop (See YEAR BOOK, 1926), and early in 1927 it was announced that the policy of restriction would be maintained to keep the price of sugar from falling below the cost of production. Later a limit of 4,000,000 tons was fixed.

The estimated production of cane sugar by other leading countries was as follows: Porto Rico 596,000 tons; Hawaiian Islands, 729,000; British West Indies, 217,000; French West Indies, 76,000; Santo Domingo, 300,000; Mexico, 175,000; Central America, 95,000; Demerara, 100,000; Peru, 290,000; Argentina, 425,000; Brazil, 650,000; other South American countries, 60,000; British India, 3,200,000; Java, 2,359 050; Formoso and Japan, 600,000; Philippine Islands, 600,000; Australia, 485,000; Fiji Islands, 95,000; Egypt, 88,000; Mauritius, 215,000; Réunion, 56,000; Natal, 241,500; Mozambique, 70,000.

The sugar-beet acreage in the United States was somewhat larger than in 1926, and the estimated production of sugar was 925,000 tons, compared with 801,246 in 1926 and 804,439 in 1925. The Canadian crop was placed at 30,000 tons. Germany led in European beet-sugar production with 1,665,000 tons, followed by Russia and the Ukraine with 1,500,000, Czechoslovakia with 1,265,000, and France with 870,000.

The annual consumption of sugar in the United States increased by nearly 3,000,000 short tons since 1909. Consumption in Europe returned to at least pre-war levels; but for the world at large sugar consumption increased during the year less than 2 per cent.

Negotiations were entered into by representatives of Cuba, Germany, Czechoslovakia and Poland, the chief of the world's sugar-exporting countries, looking to a plan for restricted production. Holland, which has large sugar interests in the Dutch East Indies, declined to attend the preliminary meeting.

An event of particular significance to the sugar trade of the United States was a meeting held early in December for the purpose of bringing about an agreement among refiners to eliminate special concessions and other irregular practices in the sale of sugar.

SUGAR ANALYSIS. See CHEMISTRY, under *Analytical Chemistry.*

SUICIDES. See CHILD WELFARE.

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[a] Compiled from the *Suez Canal Bulletin*, June 15, 1927, for all ships passing through the canal during 1926.

SULPHUR. The production of sulphur in the United States in 1927 showed a substantial increase over that of 1926, when 1,890,027 long tons were produced, and 2,072,657 tons with an approximate value of $37,200,000 were shipped from the plants. In 1927, 2,111,618 tons were produced and 2,072,109 tons, valued at approximately $38,300,000, were shipped. Texas continued to furnish practically the whole output. Mines in Nevada and Utah were in production, while a company in Louisiana was shipping from stock. The fertilizer industry required less sulphur in 1927 than in the previous year, while the pulp and paper industry consumed about the same amount. As in previous years, the United States continued to export substantial quantities of sulphur, the quantity for 1927 being 789,371 tons, valued at $16,269,254, as compared with 576,766 tons, valued at $10,918,394, in 1926. This made the 1927 exports by far the largest in the history of the industry. The increased demand was due partly to the difficulties encountered in maintaining production in Sicily, which in 1927 shipped about 240,000 long tons, and also to the improved industrial conditions in Europe. See Chemistry, Industrial.

SUMATRA. See Dutch East Indies.

SUMMERS, Leland Laflin. American engineer, died at Whitestone, N. Y., March 10. He was born at Cleves, Ohio, Mar. 6, 1871, and, after working for the Western Union and Postal Telegraph Cable Companies, in 1894 became a consulting engineer in Chicago. At the outbreak of the World War he became technical adviser on munitions to J. P. Morgan & Company, who were the purchasing representatives of foreign governments in the United States. After the United States entered the War he served as technical adviser to the War Industries Board, where he outlined the explosives programme, and performed other services. America gave him its Distinguished Service Medal, France made him an Officer of the Legion of Honor, Italy an Officer of the Crown of Italy, and Belgium honored him with the Order of the Crown.

SUN. See Astronomy; Physics.

SUNDAY SCHOOL UNION, American. A volunteer association, composed of members of different denominations of the Protestant church, whose object is to establish and maintain Sunday schools and to publish and circulate moral and religious publications. It was established in 1817 as the Sunday and Adult School Union. Through the contributions of individuals, churches and Sunday schools, it sustains missionaries and supports its general work, which is carried on by 13 districts. In the year ending Feb. 28, 1927, 774 schools were organized and 524 schools reorganized, with a total of 4078 teachers and 39,368 scholars. There were 156 Young People's Societies formed; 145 preaching stations opened; 28 churches of various denominations organized; and 11 churches built. During 1927 the Union commissioned 213 missionaries, 33 of whom served only part of the year.

The Union publishes and circulates books and supplies needed by the schools and homes which it serves. The largest of its publications is the *Sunday School World*. There were 488 enrolled in teacher-training classes during the year. Daily vacation Bible schools were held in rural communities. The income for the year ending Feb. 28, 1927, was $608,150 and expenditures $595,636. The officers in 1927 were E. Clarence Miller, president; James M. Snyder, Barton F. Blake and Robert L. Latimer, vice presidents; William H. Hirst, recording secretary; John H. Talley, treasurer. National headquarters are at 1816 Chestnut Street, Philadelphia, Pa.

SUPERPHOSPHATE. See Fertilizers.

SURASSITE. See Mineralogy.

SURGERY. See Appendicitis; Cancer; Goitre; Medicine and Surgery.

SURINAM. See Dutch Guiana.

SUTRO, Theodore. American lawyer and author, died at New York, August 28. He was born in Prussia, Mar. 14, 1845, and was brought to the United States in 1850. After graduating at Harvard University in 1871 and at Columbia University Law School in 1874, he was admitted to the New York bar. From 1895 to 1898 Mr. Sutro was Commissioner of Taxes for New York City, and for several years after this was the editor of *Das Deutsche Journal*. He wrote *The Sutro Tunnel Co. and the Sutro Tunnel* (1887), *Thirteen Chapters of American History* (1905), and also many articles on taxation, corporation law, and mining.

SVALBARD. An arctic archipelago in the eastern hemisphere, area 25,000 square miles, formerly known as Spitzbergen. It comprises all lands between 10 and 35 degrees east longitude, and between 74 and 81 degrees north latitude. By the treaty of Paris, Feb. 9, 1920, it was placed under the full and absolute sovereignty of Norway. The principal islands are West Spitzbergen, usually called Spitzbergen, Northeast Land, Barents Island, Edge Island, Wiche Islands, Hope Island, and Prince Charles Foreland. Norway assumed control in 1925 and has appointed a Governor, who lives at Green Harbor with a small staff. As all industries are conducted on Spitzbergen, they are treated under that head.

SWAIN, Joseph. American educator and former president of Swarthmore College, died at Swarthmore, Pa., May 19. He was born at Pendleton, Ind., June 16, 1857, and was graduated at Indiana University in 1883. He studied at the Royal Observatory, Edinburgh, 1885–86, after having been instructor of mathematics and biology from 1883 to 1885 at the University of Indiana, and he returned to become associate professor and later professor of mathematics, serving from 1885 until 1891. He was closely associated with David Starr Jordan, then president of the university. In 1891 he accompanied Dr. Jordan to Leland Stanford Junior University, where he was professor of mathematics until 1893, returning in that year to Indiana University to become its president, in which capacity he served until his election to the presidency of Swarthmore College in 1902. He retired in 1921 as president emeritus. The honorary degree of LL.D. was conferred upon him by Wabash College, Lafayette College, the University of Pennsylvania, Indiana University, and Swarthmore College.

SWARTHMORE COLLEGE. A non-sectarian coeducational college at Swarthmore, Pa.; founded in 1864 by the Society of Friends. The 1927 autumn enrollment was 553 full-time students, of whom 283 were men and 270 women. The teaching staff numbered 70. The endowment and productive funds amounted to $3,500,000. The library contained 60,000 volumes. During the year a gift of $300,000 was received from the Clothier family for an auditorium in memory of Isaac H. Clothier, for 40 years a member of the board of managers. President, Frank Aydelotte, LL.D.

SWAYTHLING, BARON (LOUIS SAMUEL MONTAGU). International financier, died in London, England, June 11. He was born in London, Dec. 10, 1869, and was educated at Cambridge University. Louis Samuel Montagu was the eldest son of the first Baron Swaythling. On the death of his father in 1911 he succeeded him in the peerage and as head of the firm of Samuel Montagu and Company, foreign bankers, of London, one of the leading banking houses of the city. Louis Samuel Montagu devoted his attention chiefly to international finance and to the Jewish interests with which his father had been associated. He was a life governor of the London Hospital and a benefactor of many Jewish institutions in the east end of London. During the World War he made his Southampton home a social centre for the officers and men of the American aviation camp.

SWAZILAND, swä′ze-lănd. A British protectorate in South Africa, situated north of Zululand, at the southeastern corner of the Transvaal; formerly under the South African Republic; controlled by the British government acting through a High Commissioner of the Union of South Africa. Area, 6678 square miles; population at the census of 1921, 112,838, of whom 2235 were Europeans. Capital, Mbabane. The inhabitants are largely of the Zulu type. The chief agricultural products are: Corn (the staple product), tobacco, millet, various vegetables, peanuts and cotton. The mineral resources are considered rich, but are undeveloped. The revenue for 1925–26 was £110,108 and the expenditure £97,047. As noted above, the territory is under the administration of the High Commissioner for South Africa, but the local administration is under a resident commissioner. Resident Commissioner, in 1927, D. Honey.

SWEDEN. A Scandinavian kingdom in the extreme northwestern part of Europe, occupying the eastern and larger part of the Scandinavian peninsula. Capital, Stockholm.

AREA AND POPULATION. The total area of Sweden is 173,105 square miles; the population, according to the census of 1920, was 5,904,489; estimated, Dec. 31, 1925, 6,053,562. The population per square mile in 1925 was 34.9. The movement of population in the same year was: Births, 105,989; deaths, 70,840; marriages, 37,231; immigrants, 5053; emigrants, 11,948, of whom 8637 migrated to the United States. Cities with more than 100,000 inhabitants at the beginning of 1926 were Stockholm, 442,528; Göteborg, 231,007; and Malmö, 116,348.

EDUCATION. Primary instruction is free and compulsory between the ages of seven and 14. In 1925 there were 26,507 teachers and 680,249 pupils in the public elementary schools. In the same year there were 77 public secondary schools with 29,392 pupils; 51 people's high schools with 3174 pupils; two high and seven elementary technical schools with about 2700 pupils. There are two universities, Upsala, founded in 1477, and Lund, founded in 1668. The former had 2906 students, and the latter 1985 students, in the fall of 1925. Besides, there are navigation schools, agricultural schools, veterinary schools, etc.

PRODUCTION. Sweden depends almost entirely upon its iron and its forests. Perhaps the most interesting feature of the country's industrial development is the close association of these two resources. The result is an interlocking system in which it is usual for a single corporation to control a power plant and to engage in the manufacture of both iron and steel and forest products. The value of all crops in 1925 was estimated at 1,102,000,000 kroner; there were 8,168,546 tons of iron ore raised in the same year (37,335 persons were engaged in mining). The value of the wood and paper industrial output, which employed 93,736 workers, was 875,199,000 crowns. The total output of the 11,493 factories of all kinds in the kingdom was valued at 4,197,991,000 crowns. In 1925, 292,714 men, 61,177 women, 28,119 boys and 9682 girls (under 18 years of age) were employed in factories.

COMMERCE. The foreign trade of Sweden during the first nine months of 1927 resulted in an export surplus of 24,000,000 crowns, exports totaling 1,150,700,000 crowns and imports 1,126,700,000 crowns. For the corresponding period of 1926, there was an import surplus of 84,000,000 crowns. In 1926 exports amounted to $379,796,000 and imports to $398,628,000, in U. S. money. Of the main export groups, "Lumber" showed the greatest value increase for the first nine months of 1927, as compared with the corresponding period of 1926, the totals being 211,246,000 crowns and 169,092,000 crowns, respectively. "Mineral raw materials" (iron ore) and "Animal foodstuffs" also registered marked increases of 38,027,000 crowns and 25,420,000 crowns, respectively. The workshop industries increased their exports by about 13,000,000 crowns. There were also to be recorded some outstanding changes on the import side, but the total increase in the value of the imports during the first nine months of 1927 over the same period of 1926 was only 56,300,000 crowns. Coal imports showed the largest increase, about 36,000,000 crowns. It should not be concluded, however, that the coal imports of 1927 were unusually high, as the previous year's imports were below normal on account of the English coal strike.

FINANCE. Sweden's proposed budget for 1927–28, published early in the year, balanced at 709,200,000 crowns; this represented a cut of 35,300,000 crowns from 1926–27. The outstanding feature was the absence of recourse to the treasury reserve. The cash account was to be utilized to the extent of about 30,000,000 crowns during the year. Direct State income was estimated at 537,900,000 crowns in the proposed budget, a considerable increase over the total of 516,000,000 crowns for the previous year. Furthermore, it was proposed that the tobacco tax, certain stamp taxes, and the tax on automobiles be increased. The following figures, in crowns, show the main sources of income in the 1927–28 budget as compared with the 1926–27 budget (figures for the latter in parentheses); Customs, automobile taxes, etc., 320,000,000 (305,000,000); income tax, 147,000,000 (142,000,000); and stamp taxes, 48,000,000 (45,000,000). A proposed doubling of the stamp tax on lottery tickets was estimated to return an increase of 3,000,000 crowns. The Swedish national debt at the end of March, 1927, totaled 1,749,264,000 crowns.

Communications. On Jan. 1, 1926, the Swedish merchant marine numbered 2567 vessels of 1,417,340 gross tons. The vessels entering Swedish ports in 1925 numbered 29,018 of 13,408,671 tons; cleared, 28,929 of 13,377,044 tons. At the end of 1925 the total length of railways in Sweden was 15,981 kilometers, of which 6010 kilometers belonged to the State.

Government. Executive power is vested in the King, who acts through a responsible ministry known as the Council of State, at the head of which is the Minister of State or Premier; legislative power is in a diet of two chambers, of which the upper has 150 members elected by the legislatures of the provinces; the lower chamber consists of 230 members elected for four years by universal suffrage. The King in 1927 was Gustaf V, born June 16, 1858, who ascended the throne on the death of his father, Oscar II, Dec. 8, 1907. The ministry was constituted as follows: Premier, Carl Ekman; Foreign Affairs, E. Löfgren; Justice, J. Thyren; Defense, G. Rosen; Social Affairs, Y. Pettersson; Communications, C. Meurling; Finance, E. Lyberg; Education and Ecclesiastical Affairs, J. Almkvist; Agriculture, P. Hellstrom; Commerce, F. Hamrin; Ministers without portfolio, S. Ribbing and N. Gärde.

SWEDENBORGIANS. See New Jerusalem, Church of the.

SWEDISH LITERATURE. See Scandinavian Literature.

SWIMMING. John Weissmuller of the Illinois A. C. of Chicago, and Miss Martha Norelius of the Women's Swimming Association of New York City, stood in a class by themselves in the swimming history of the United States in 1927.

The most noteworthy achievements of Weissmuller were his lowering of the world time for 220 yards from 2:15 1-5 to 2:09 in a 75-foot pool, and for 440 yards in a 110-foot pool from 4:59 4-5 to 4:52. Miss Norelius swam 500 yards in 6:32 in a 75-foot pool, bettering the former time by 3 2-5 seconds, and one mile in 25.13 2-5 over a 55-yard course, excelling the old record by 32 3-5 seconds. Clarence Crabbe was another record breaker of the year, cutting the American time for a mile to 2:52 2-5. George Kojac of the Boys' Club, New York City, who defeated Weissmuller in the 150-yard backstroke championship, set a new world's record of 2:36 for 220 yards. In breast-stroke swimming Walter Spence, of Brooklyn Y. M. C. A., and Miss Agnes Geraghty, of the Women's Swimming Association, were the two outstanding performers. Spence lowered the world's time for 100 meters to 1:14 in a 75-foot pool and the 300-meter mark to 4:14 3-5. Peter Desjardine of the Roman Pool, Miami, Fla., and Miss Helen Meany, of the Women's Swimming Association, led all rivals in springboard and high fancy diving. In the college aquatic world, Paul Samson of Michigan lowered the free-style times for the 220 and 440 yards to 2:17 2-5 and 5:09 4-5, respectively.

Long-distance swimming was marked by several notable feats in 1927. George Young, a 17-year-old Canadian, won the 22-mile swim across the Catalina Channel, California, and Edward Keating, of New York City, triumphed in a 23 1-2 mile race in Lake George, N. Y. A 21-mile contest in Lake Ontario resulted in an easy victory for Ernest Vierkoetter of Germany.

The United States senior outdoor championships for men returned the following winners: 100 meters, John Weissmuller, 58 seconds; 440 yards, Weissmuller, 4 minutes, 42 seconds; 880 yards, Weissmuller, 10 minutes, 22 1-5 seconds; 1 mile, Clarence Crabbe, Outrigger Canoe Club, 22 minutes, 52 2-5 seconds; high diving, Peter Desjardine, Miami, Fla.; long distance swimming, Ray Ruddy, New York Athletic Club, 1 hour, 21 minutes, 5 2-5 seconds.

The winners in the senior women's outdoor championships were: 100 meters, Martha Norelius, Women's S. A., 1 minute, 13 4-5 seconds; 440 yards, Martha Norelius, 5 minutes, 57 1-5 seconds; 880 yards, Martha Norelius, 13 minutes, 17 4-5 seconds; mile, Martha Norelius, 25 minutes, 13 2-5 seconds; high diving, Helen Meany, Women's Swimming Association.

SWINE. See Livestock.

SWITZERLAND. A federated republic of western Europe, comprising within its limits ranges and peaks of the Alps and Jura Mountains. Capital, Berne.

Area and Population. The area of Switzerland is 15,940 square miles; population, according to the census of 1920, 3,880,320; estimated Dec. 1, 1925, 3,936,330. In 1925 the estimated population of the principal cities was as follows: Zurich, 206,323; Basle, 137,500; Geneva, 126,350; Berne, 106,680. The movement of population in 1925 was: Births, 74,508; deaths, 49,849; marriages, 28,110; emigrants, 4334. Linguistic differences constitute the most important distinction among the various Swiss types. German is the language of 70.9 per cent of the people, French of 21.2 per cent, Italian of 6.2 per cent, and Romansch of 1.1 per cent. Dialects of the various languages spoken in Switzerland are numerous.

Education. In 1924–25 there were 4407 primary schools, with 16,738 teachers and 495,516 pupils; the 599 secondary schools had 27,321 boys and 26,258 girls, with 1832 men and 668 women teachers; 94 lower middle schools had 8542 boys and 4666 girls, with 591 men and 106 women teachers. For special education there were various commercial, technical, agricultural and other schools. The seven universities of Switzerland, at Basle, Zurich, Berne, Geneva, Lausanne, Fribourg and Neuchâtel, are organized on the model of those of Germany, governed by a rector and a senate, and divided into four faculties of theology, jurisprudence, philosophy and medicine. In 1925–26 the total number of students in attendance at these universities was 6662 and the members of the faculties numbered 962.

Production. Of the total area, 2,317,243 acres are unproductive; of the productive area, 2,315,482 acres are forest, 3,025,000 acres are under grass, and 2,000,000 acres are pasturage. The principal crops are wheat, rye, oats, and potatoes. The chief agricultural industries are the making of cheese and condensed milk. Wine is produced in eight of the cantons, and tobacco in three. (For the estimates of the principal agricultural crops in 1927 see table of production by countries, in article Agriculture.) The forest area belongs chiefly to the municipalities and is under Federal forest laws.

Commerce. Owing to the great dependence of Switzerland on foreign raw materials for its industrial requirements, the visible trade balance of the country is regularly unfavorable. It is estimated that, but for its foreign markets, the country could support only one-half to two-thirds of its present population. Access to the important sales areas had become increasingly difficult for Swiss manufacturers during recent years. This development had been brought about chiefly by two factors, the raising of tariff walls in foreign countries and the continuing lack of favor shown by fashion to certain typical Swiss products, particularly embroidered goods and silk ribbons.

Foreign trade in 1925 as a whole (excluding precious metals) showed imports of 2,527,000,000 francs as against exports of 2,039,000,000 francs, or an adverse trade balance of 488,000,000 francs. The similar figures for trade in 1926 were 2,393,500,000 francs for imports and 1,836,500,000 francs for exports, or an adverse trade balance of 557,000,000 francs; this represents an increase of the unfavorable trade balance by about 69,000,000 francs. Exports in 1926 did not show a satisfactory development, since they were less than in the previous year by more than 200,000,000 francs; this was largely the effect of the new English and German tariff legislation.

Export trade for the first quarter of 1927 showed marked improvement over the similar period of 1926, reaching 465,000,000 francs as compared with 428,000,000 francs in the earlier period. From the tendency of the first three months of the year it was expected that the year 1927 would show a better export value than 1926.

Finance. The Swiss budget estimates for 1927 showed revenues of 309,493,000 francs and expenditures of 323,700,000 francs. The public debt on Jan. 1, 1925, exclusive of the railway debt, was 2,086,635,000 francs. The floating debt amounted on the same date to 168,485,000 francs. The total debt of the country was thus 4,855,288,000 francs.

Communications. The results of operating the Swiss railways during 1926 fell far short of expectations, and the earnings, not only of the Federal Railways but also of the great majority of the private lines, showed a further setback as compared with 1925, and especially with 1924. In 1926 the gross revenues of the State Railways amounted to about $15,000,000 and the expenditures to about $10,000,000 leaving a gross surplus of $5,000,000. The financial requirements of the Federal Railways in 1926, including service and amortization of their debt and war losses, exceeded this gross surplus by about $500,000, representing a net loss, as compared with a net profit of about $400,000 in 1925. This loss was attributable partly to a decrease of about $800,000 in passenger traffic earnings and partly to another of $2,800,000 in freight receipts, due to the application of lower rates to cope with motor transport. In 1926 the Federal Railways earned 2.6 per cent less than in 1925, the narrow-gauge lines 4.2 per cent less, the private standard gauge lines 2.7 per cent less, rack railways, 11.8 per cent less, and funicular railways 3.6 per cent less. The percentage deficit on all railways was 2.5 per cent.

Government. Both executive and legislative power are vested in a parliament of two chambers, the Council of State and the National Council, the first having 44 members elected by the cantons, two for each canton; the second has 198 members elected directly by the people. The two chambers united form the Federal Assembly, which is the supreme organ of government and delegates the chief executive authority to the Federal Council, whose seven members are elected for three years. The seven members of the Federal Council act as ministers for the departments of the government. The chief magistrates are the President of the Confederation, and the Vice President of the Council, and are elected by the Federal Assembly for one year. President in 1927, Dr. Giuseppe Motta; Vice President of the Federal Council, Edmund Schulthess.

SYMPATHOL. See Chemistry, under *Biochemistry.*

SYMPHONY CONCERTS. See Music.

SYNTHETIC PREPARATIONS. See Chemistry, Industrial.

SYPHILIS. See Chemistry, under *Biochemistry.*

SYRACUSE UNIVERSITY. A non-sectarian, coeducational institution at Syracuse, N. Y., founded in 1870. The 1927 autumn enrollment was 5482, and the summer session enrollment 1445. The faculty numbered about 590 for the year 1926–27. The productive funds of the university amounted to $3,444,908, and the income for the year to $1,480,683. The library had 138,591 volumes and over 60,000 pamphlets.

In the spring of 1927, Syracuse University inaugurated a policy of surveying, with the aid of outside experts, the curricula and academic equipment of its various schools and departments. As a result of the study of a committee under the direction of Dean Pound of the Harvard Law School, Louis Marshall of New York, and a representative of the university, the law school, of which Paul Andrews was dean, was completely reorganized with the opening of the autumn session, and full-time teachers replaced the practicing lawyers who had been teaching on a part-time basis. A similar study of the library school, with the coöperation of the American Library Association, resulted in the appointment of Wharton Miller from Union College as director, and Edward S. Rowse, formerly director of the State Museum, as associate. At the November meeting of the Board of Trustees a teachers' pension system for all grades was adopted. Chancellor, Charles Wesley Flint, D.D., LL.D., Paed.D.

SYRIA. Traditionally, the region lying between the Syrian desert and the Euphrates River on the east and the Mediterranean on the west; and between the Taurus Mountains in the north and Egypt on the south; formerly a province of the Turkish Empire; in 1920 recognized as an independent state under a mandatory power, the mandate being bestowed upon France. Syria, under the mandate, is bounded by the Mediterranean on the west, by Palestine on the south, by Mesopotamia on the east, and by Turkey on the north. Since Jan. 1, 1925, the country comprises four territories. Syria, Alaouite, Great Lebanon, and Jebel Druze. The total area of the mandated region has been placed at 60,000 square miles, and the population at less than 3,000,000. Arabic is the prevailing language, the great majority of the inhabitants being of Arabic stock, and, in religion, Sunnite Mohammedan. The chief towns are Damascus, 170,000; Aleppo, 140,000; Beirut, 80,000; Homs, 60,000; Hama, 35,000. There are about 500 French schools, with 50,000 pupils. Various educational schools are maintained by the Greek Catholics, the Maronites, the British missionary societies, and Roman Catholic agencies. There is an American university at Beirut.

PRODUCTION. Economic depression in Syria prevailed during 1926 but an improvement was noted toward the close of the year. Syria is essentially an agricultural country, and under the mandatory government efforts have been made to encourage the adoption of scientific methods of farming. Although the cultivable area of the country is estimated at about 12,500,000 acres, only about one-fifth of that total was actually under cultivation in 1926. Data on agricultural production for 1926 are incomplete, but estimates for the Damascus region indicated an improvement over 1925 in cereals, fruit, nuts and cotton. However, reports from the Beirut district showed less satisfactory results for cotton. Production of fresh cocoons during 1926 was estimated to have been slightly larger than during the preceding year when it totaled 2900 metric tons; raw wool was estimated at somewhat over 3000 metric tons, or about equal to 1925. The livestock industry around Damascus suffered considerably during the disturbances, and heavy losses were also sustained during the severe winter of 1925–26.

COMMERCE. Both imports and exports, including reëxports, in 1926 showed a decrease in dollar value, as compared with 1925, while the adverse balance totaled $23,403,000 as against $24,617,000 in the previous year.

FINANCE. Preliminary results for 1926 indicated receipts of 8,494,000 Syrian pounds and expenditures of 6,670,000 pounds, a surplus of 1,824,000 pounds. The budget for 1927 fixed receipts and expenditures at 1,508,630 Syrian-Lebanese gold pounds (1 gold pound equals 20 gold francs).

COMMUNICATIONS. A total of 3160 vessels of an aggregate tonnage of 1,768,744 visited Syrian ports in 1926, as against 3182 vessels and 1,710,113 tons, for 1925.

There are two railroad systems in Syria, the Chemin de Fer Damas, Hama et Prolongements, and the Chemin de Fer Cilicie-Nord Syrie, known as the D. H. P. and C. N. S., respectively. The former operates the Hejaz Railway and the Tramways Libanais.

HISTORY. Desultory fighting between the Druses and the French occurred at the beginning of the year. The French High Commissioner refused to recognize the tribesmen as belligerents, and the tribesmen continued to demand an independent Syria which should be permitted to enter the League of Nations. By the summer the French had brought the revolt of the Druses and Syrian Nationalists to an end. The chief topic concerning Syria during the year was, When was France going to establish an organic law as provided for in the terms of the mandate? This was supposed to have been done by September, 1926, but the French government asked for and received an extension of time from the League of Nations. The year 1927 closed without anything definite being accomplished. To the observer it appeared from French acts, such as press censorship, interference with the constitution of Lebanon, and refusal to allot customs duties to the native states, that Syria was not a mandated region but a possession, and as such was to be exploited in the usual imperialistic way.

TACNA-ARICA ARBITRATION. See ARBITRATION, INTERNATIONAL.

TAHITI. See OCEANIA, FRENCH ESTABLISHMENTS IN.

TAIWAN, tī′wän′. Official Japanese name for Formosa (q.v.).

TALBOT, HENRY PAUL. American chemist and educator, died at Boston, Mass., June 18. He was born at Boston, May 15, 1864, and graduated at the Massachusetts Institute of Technology in 1885, becoming at once connected with the department of chemistry. He received the degree of Ph.D. at Leipzig, 1890. His entire professional career was spent in the department of chemistry of the Institute, of which he became head, and he was also chairman of the faculty, and after 1921 dean of students. During 1892–94 he lectured on chemistry at Wellesley College and in the World War he was a member of the Advisory Board of the U. S. Bureau of Mines for chemical research connected with gas defense. In 1921 the honorary degree of Sc.D. was conferred on him by Dartmouth College. In addition to writing numerous papers and articles on scientific topics he was the author of *An Introductory Course of Quantitative Chemical Analysis* (1897); (with A. A. Blanchard) *The Electrolytic Dissociation Theory* (1905); and *Bibliography of the Analytical Chemistry of Manganese* (1902).

TALC AND SOAPSTONE. The production of talc and soapstone in 1927 in the United States was estimated at practically the same amount as in 1926, when the output of talc was stated by the U. S. Bureau of Mines to be 181,568 short tons, valued at $2,110,994. New York in 1926 was the largest producer, with 83,231 tons, valued at $1,030,075, followed by Vermont with 53,510 tons, $514,527, and California with 15,419 tons, $233,292. In 1927 a new talc mine was under development at Gouverneur, N. Y., to start production in 1928, and in northern Idaho a deposit of soapstone and talc was being opened up in the Riggins district. In northern California, at the Ganim mine, a deposit of talc had been discovered for which a market had been found. After the United States, Canada, with 14,304 metric tons in 1926 and Austria, with 13,846 tons, were the leading producers of talc and soapstone in the world.

TANGANYIKA (tăn′gȧn-yē′kȧ) **TERRITORY.** A territory under British mandate, comprising the portion of German East Africa assigned to Great Britain after the conquest of the country by British and Belgian soldiers during the World War. Area, about 365,000 square miles; native population (mainly of mixed Bantu race), according to the census of 1921, 4,107,000. The Europeans numbered 2447; Asiatics, 14,991, of whom about two-thirds were Indians. Capital, Dar-es-Salaam, with a population of 25,000. The capital and Tanga are the chief seaports. In 1925 there were 78 government schools, 1703 Roman Catholic schools, and 865 Protestant schools, with a total roll exceeding 160,814 pupils.

The total area under forest is approximately 2,700,000 acres, of which 2,170,000 acres are included in the government forest reserves. Ebony, gum copal and wild rubber are found. The chief agricultural products are cereals, manioc, peas and beans, groundnuts, oil products, sweet potatoes and other vegetables, fruits (chiefly bananas) and coffee. Sisal and cotton production are also important industries. The output of cotton in 1925–26 was estimated at 8,000,000 pounds A livestock census taken in 1925 showed 4,471,729 cattle and 4,332,686 sheep and goats. The principal minerals found are coal, gold, mica, graphite, iron and copper ores, cobalt and nickel. The total imports in 1925 were valued at £2,863,917; exports, £3,007,879; transit trade, £1,355,602. The imports for 1926 were valued at £3,607,000 and the exports at £3,904,000. The principal imports consisted of cotton piece goods, foodstuffs, building materials, iron and steel manufactures, machinery, kerosene and gasoline, cigarettes, and liquors. The principal exports were sisal, cotton, groundnuts, coffee, hides and skins, copra, grain, simsim, beeswax, ghee, and chilies. The revenues in 1926 amounted to £1,635,530 and the expenditures to £1,952,280. In 1925, 538 steamers (exclusive of coastal boats) of 918,923 tons, and 2269 dhows of 46,882 tons, entered and cleared from the various coast ports from places beyond the territory.

The head of the administration is a governor, who is aided by a nominated executive council. Governor of the territory in 1927, Sir D. C. Cameron.

TANGEITE. See MINERALOGY.

TASMANIA. A state of the Australian Commonwealth, consisting of the island of that name and several small islands. Area, including the island of Macquarie (170 square miles), 26,215 square miles; population, according to the census of 1921, 213,780; estimated on June 30, 1927, 210,529. The movement of population in 1925 was: Births, 5218; deaths, 1996; marriages, 1504. Capital, Hobart, with a population including suburbs (Mar. 31, 1925), 55,000. The population of Launceston, including suburbs, on the same date was 27,320.

The agricultural produce in 1924–25 was: Wheat, 231,388 bushels; oats, 1,065,933 bushels; peas, 353,815 bushels; potatoes, 83,377 tons; hay, 121,110 tons; fruits, 2,672,857 bushels; and hops, 2,224,500 pounds. The value of agricultural and pastoral products was £5,699,258, mining products, £1,396,909, and of manufactures, £4,174,891. The chief minerals in order of value were copper, tin, lead, silver, zinc, coal, gold, and osmiridium. The two chief sources of exports are fruit preserving and metal extraction. The total imports in 1924–25 were valued at £8,814,460; exports, £8,848,173. The principal exports are wool, minerals, timber, fruit, grain, potatoes, hops, bark, and hides and skins. The total registered shipping amounted to 182 vessels, of 14,532 tons. On June 30, 1925, Tasmania had 673 miles of railway that were opened to traffic.

The administration is under a governor, who acts through a responsible ministry, and the legislative power is vested in a parliament of two houses, the Legislative Council of 18 members, elected on the basis of property qualification, and the House of Assembly of 30 members, elected for three years by universal suffrage, including women, and with proportional representation. Governor in 1927, Sir James O'Grady; Prime Minister, Treasurer, and Minister for Mines, J. A. Lyons.

TAXATION. Discussion of the tax situation in the United States during 1927 was of chief interest from the Federal standpoint. It culminated during the latter part of the year in the consideration of the Federal income tax and of the estate tax situation by the Ways and Means Committee of the House of Representatives, while the year closed with a vigorous debate in the House on a tax reduction bill.

The year, however, also was of considerable importance from the standpoint of State legislation, and as usual this State legislation centred around income and inheritance tax provisions. However, there was no very material progress toward extended modification of the State systems and practically none toward the establishment of a basis of adjustment between them and the Federal government with regard to conflicting administration of income and inheritance tax provisions. Some progress was made in bettering the details of provisions of law and of administration, but what was done was of local interest chiefly. Toward the close of the year, however, the California legislature made provision for a general revision of the tax system of that State.

Internationally, the step of most interest was the presentation to the League of Nations of the report of the expert committee which had been appointed to study the question of double taxation and the best means of avoiding it in the case of individuals and enterprises living or operating in two or more nations.

STATE INCOME TAXES. Changes in State income taxes were found chiefly in Delaware, Missouri, New York, North Carolina, South Carolina, Oregon, and Wisconsin. In Delaware the action taken was chiefly a rectification of administrative provisions, while provision was made for payment of the tax in four equal annual installments, and the credit previously allowed to certain corporations for State taxes paid was withdrawn. In Indiana an amendment to the constitution providing for an income tax was passed by the General Assembly. In Missouri several important changes in methods of computation were made, and especially in the method of computing the net income of a resident of the State which made deduction for taxes assessed and levied by any other State, as income tax on property of non-residents was abolished. Stock dividends were also made taxable. In New York an amendment to the law authorized adjustments of income tax in favor of payers who are selling goods on the installment plan. In North Carolina the rate of the tax was increased from 4 per cent to 4½. In Oregon an act providing for a tax on income was submitted to the people at a special election in June, and was rejected. In South Carolina certain new exemptions and deductions were provided, while in Wisconsin the law itself was amended, and the tax was based upon average net incomes instead of on all income, while the rate remained the same.

STATE INHERITANCE TAXES. Changes in State inheritance taxes were made by California, which provided for reciprocity in subjecting to such taxes the intangible personal property of non-residents; by Georgia, which imposed the tax after the "Matthews flat-rate plan" on the property of non-resident decedents; by Illinois, which exempted intangible personal property of non-residents if they were residents of a State granting like exemption; by Indiana, whose legislature adopted a concurrent resolution asking Congress to abolish the Federal estate tax; by Maine, Maryland, Massachusetts, and other States, which provided for reciprocity in the taxation of non-resident decedents after July 1, 1928; by New Jersey, which had greatly increased its rates in the higher brackets; by North Carolina, which had granted an 80 per cent credit as in the Federal tax; by North Dakota, which had repealed inheritance taxes and substituted an estate tax; by Oklahoma, which had imposed a tax on amounts over $100,000, with graduated rates; and by Pennsylvania and Vermont, which had granted the 80 per cent credit in conjunction with the Federal government provision.

State Constitutional Amendments. State constitutional amendments were provided for by Idaho, which submitted to the people an amendment providing that all taxes shall be collected by the officer or officers designated by law; by Minnesota, providing for the crediting of two-thirds of the proceeds of the gasoline tax to the trunk highway fund and one-third to the State road and bridge fund; by North Carolina, permitting the classification of intangible personalty for purposes of taxation: by North Dakota, giving the State Board of Equalization power to assess the property of public-utility companies; by Oregon, providing for an income-tax amendment and omitting the amount of the State tax (rejected); by Texas, providing for the classification of property (rejected); special tax-investigating commissions were provided for in Arkansas (taxation and business); in California (general investigation); in Illinois (studying methods of assessment); in Maryland (studying general tax revision); in Massachusetts (revising the general tax laws); in Minnesota (studying specially the laws on intangible personalty); in New Hampshire (studying tax revision); in North Carolina, (making a comparative study of taxation); and in Texas (making a "tax survey").

Special Taxes. Insurance companies were subjected to special taxation in Alabama, North Carolina, Pennsylvania, Texas (through reassessment and revaluation), and Wyoming. Various states adopted new forms of taxation on intangibles, money and credit. Connecticut in 1927 provided for payment of taxes on bonds or mortgages by the owner of real estate instead of by the lender. Kansas raised the tax on money and credit from 2.5 mills per dollar to 5 mills, and made other minor changes. Nebraska revised its intangible tax law, so as to tax all money and capital competing with national banks, at the same rate as bank stock. New York removed the stock-transfer tax on shares or certificates of stock of any domestic concern, when the sale, the agreement to sell and the delivery are all made outside of the state. Oklahoma took intangible properties out of the general property class and subjected them to a special tax of $\frac{1}{6}$ of 1 per cent. Vermont added perpetual or redeemable leases and shares of incorporations or business trusts (except national banks, trust companies and savings banks, etc., organized under Vermont law) to the class of personal property, to be taxed at the rate of 40c. on $1 of 1 per cent of appraised value.

Motor Vehicle Taxes. In Alabama two sets of registration fees, one on motor trucks using fuel on which excise tax had been paid, the other on trucks using fuel on which it had not been paid, were provided. California added three sections to its code designed to carry into effect constitutional provisions relative to excise taxes on motor vehicles. Connecticut taxed motor buses operated in connection with street railway lines in the same manner as the street railways. Georgia changed the basis of registration fees from horse power to weight. Maryland provided that no automobile can be licensed unless all other taxes on the automobile have been paid. Minnesota required public-service corporations paying gross-earning taxes to pay motor-vehicle taxes on cars or trucks using the public highways. Nevada imposed a special, but not an additional, license tax on all common carriers under the supervision of the Public Service Commission. New Jersey removed the general property tax on motor vehicles, and imposed an excise of $\frac{3}{4}$c. per mile over New Jersey roads on common carriers engaged in interstate traffic. North Carolina increased the operator's license fee on common carriers from $1 to $5. North Dakota created a department of motor vehicle registration. Oregon required dealers in motor vehicles to be licensed and bonded; motor vehicles when used as common carriers must pay a license tax. Wyoming imposed an additional tax on common carriers over and above the tax that was imposed on other motor vehicles.

State Railroad Taxes. Maine changed its rate of railroad taxation to a basis of comparison of gross receipts with net. Maryland repealed the tax of 2 per cent on gross earnings of freight-line companies. Nebraska enacted a new law prescribing a new method for assessing railroad companies, such method to be determined by the Board of Equalization.

State Tobacco Taxes. In Alabama a tax equal to 15 per cent of the whole price of cigars, cigarettes, etc., within the State was imposed. Kansas levied upon all cigarettes a stamp tax of 2c. on each 20 cigarettes or fraction, or 1c. on each 50 cigarette papers or fraction. License fees for selling were established at $150 in large cities, $50 elsewhere and $300 on trains. Tennessee reënacted its tobacco tax of 1921, the proceeds to go to education.

Federal Tax Receipts. Federal tax receipts during the year (fiscal year) 1927 are restated under the head of Public Finance (q.v.), as a part of general treasury income. Aggregate totals showed increase in receipts from $3,962,000,000 in 1926 to $4,129,000,000 in 1927. Internal revenue collections, which include income taxes, tobacco and other miscellaneous internals, increased from $2,837,000,000 to $2,869,000,000, or $31,774,000 over the preceding year, while receipts for customs and miscellaneous sources, including government-owned securities, Panama tolls, etc., were $1,260,000,000, as compared with $1,125,000,000 in 1926. Customs receipts increased from $579,430,000 to $605,500,000. The changes in the principal sources of receipts thus reviewed showed the general effect of the revenue act of 1926. The 1926 revision had changed the rates for different individuals subject to income tax, but through the increase in the income-tax rate on corporations it adjusted all income taxation so that corporations as a group pay an even larger proportion of the income taxes than formerly. The following table shows the percentage distribution of income tax returned by corporations and by individuals in recent years:

	Corporation Per cent	*Individual Per cent*
1922	47	53
1923	59	41
1924	56	44
1925	61	39

The increased proportion of income taxes returned by corporations for 1925 reflects only part of the 1926 revision, inasmuch as the rate was set at 13 per cent for 1925 and 13½ per cent for subsequent years. Corporations were returning well over three-fifths of the income taxes. The revenue act of 1926 increased the personal credit exemptions for single persons 50 per cent and for married persons and heads of families 40 per cent. More than 44 per cent of individual taxpayers were relieved from income-tax payments, while reductions in the rate of normal tax were made from 2 per cent, 4 per cent and 6 per cent to 1½ per cent, 3 per cent and 5 per cent, respectively. Surtax rates were cut from a maximum of 40 per cent to a maximum of 20 per cent. These changes did not result in the expected loss of revenue; indeed, the individual income-tax returns for the last available year showed a larger tax than for the preceding year's returns before the tax cuts were adopted. This was due to a variety of causes; among them was the increased size of incomes due to general prosperity. For the calendar year 1925 (as reported by the Secretary of the Treasury at the end of 1927) 327,018 individuals, with a net income of $10,000 or over, returned $701,498,000, and 2,174,148 individuals returned $33,000,000. Less than .3 of 1 per cent thus returned 95 per cent of the total income tax, about 1.9 per cent returned 4½ per cent and the remaining 97.8 per cent returned no tax whatever. The largest number of corporations making tax returns prior to 1925 was 417,421. For 1925, corporations to the number of 252,334 returned net income, and 177,138 returned no net income. The net income for 1925 was $9,584,000,000, and the income tax was $1,170,331,206.

CHANGES RECOMMENDED TO CONGRESS. The Secretary of the Treasury at the opening of Congress in December, 1927, recommended the adoption of important changes in taxation. In general, his suggestions could be classed under a few heads as follows: (1) Reduction in the rate of tax on corporate income from 13½ per cent to 12 per cent, a cut of about $135,000,000; (2) change of corporate income-tax provisions so as to permit small corporations with net income of $25,000 to pay taxes as partnerships, an estimated reduction of not over $35,000,000; (3) readjustment of rates on intermediate incomes in intermediate brackets, a reduction of about $50,000,000; (4) repeal of the state tax, a reduction of $7,000,000, and (5) exemption from taxation for American bankers' acceptances held by foreign banks of issue.

These changes were taken under advisement by the Ways and Means Committee, and it was estimated that the aggregate reduction from them would not amount to more than $225,000,000. Pressure from many interests ensued, and as a result additional exemptions were granted by lessening the tax on automobiles, theatrical admissions, etc., so that the total revenue cut was raised to $289,000,000. The House, however, refused to permit the elimination of the estate tax, and it also altered Secretary Mellon's recommendations as to the income tax on the intermediate brackets of income. Many other changes of detail were introduced; the bill as thus altered was adopted in the House of Representatives by a combined vote drawn from all party groups, and the bill was sent to the Senate. See also PUBLIC FINANCE.

TAXATION, MUNICIPAL, STATE CONTROL OF. See MUNICIPAL GOVERNMENT.

TELEGRAPHY. During 1927 a number of important developments occurred in the field of telegraphy, both on land and by submarine cable. Not only were facilities extended, but speed of operation was increased. On Mar. 4, 1927, direct cable service between the United States and Germany was formally reëstablished, and messages were exchanged between President Hindenburg and President Coolidge. The Western Union Telegraph Company opened also a new direct cable to France, establishing instantaneous cable communication between New York and Paris, with no manual relays throughout the length of the line. This involved the diversion of one of the New York-Penzance cables to Le Havre, where the French government granted permission for the cable landing. The Penzance cable was cut off the coast of England and continued into Le Havre. This company during the year also established direct cable service between America and Belgium, with its own cable offices at Brussels and Antwerp.

On land the most significant feature of the year in telegraphy in the United States was the increased use of the simplex printing telegraph by the Western Union Telegraph Company, and its installation on many of its lines. At the end of the year over 600 simplex printers were used in various parts of the Western Union system, and it was anticipated that within the next four years the number would be increased to approximately 8000. It was estimated at the end of the year that more than 70 per cent of the 200,000,000 messages handled annually by the Western Union Company were transmitted and received automatically. Nevertheless, the old-time Morse operator was still required for a great many purposes, such as the transmission of news of great sporting events.

The increase in cable traffic was reflected in the statistics of the Western Union Company, for 1926, when a total volume of 87,372,278 words figured in the cablegrams handled by that company, as compared with 37,972,000 words transmitted in 1913.

ALL-AMERICA CABLES. At the end of the year the All-America Cables Company had in operation submarine cables to the length of 24,888 nautical miles, and land lines 2080 statute miles. The lines of this company in Central America during the year were extended by the following new cables: December, 1926, Fisherman's Point, Cuba, to Colon, Panama, 771.04 nautical miles; January, 1927, Chorrillos, Peru, to Iquique, Chile, 790.02 nautical miles; Iquique to Valparaiso, Chile, 947.57 nautical miles; February, Cartagena, Colombia, to Barranquilla, Colombia, 79.971 nautical miles; and May, Fisherman's Point, Cuba, to Port au Prince, Haiti, 189.862 nautical miles.

TELEPHONY. Estimates compiled just before the end of the year indicated that during 1927 there was a net increase of more than 750,000 in the number of telephones in service in the United States, bringing the total at the close of the year to approximately 18,500,000. Of these, over 2,850,000, or 15.4 per cent, were served from dial system central offices. Telephone wire in service in the United States amounted to more than 63,000,000 miles at the end of 1927, of which about 5,000,000 miles was placed in operation during the year. In January, 1927, a third transcontinental telephone line was formally opened. This line connects Minneapolis with Spokane, Seattle and Portland, supplementing the service already given over the first transcontinental line by way of Denver and San Francisco and the second transcontinental line via New Orleans, El Paso, and Los Angeles.

Progress was also made during the year in the construction of long-distance telephone cable lines which are practically storm-proof. A cable 649 miles in length was placed in service between New York, Albany, Buffalo, and Cleveland, which would ultimately provide for the simultaneous transmission of 250 telephone conversations and at least an equal number of telegrams. Cable construction was also pushed south of Washington, through Petersburg, Va., and elsewhere. Facilities for the transmission of pictures by wire were established during the year at Atlanta, Los Angeles, and St. Louis, thus extending the service which was previously available at Boston, New York, Cleveland, Chicago and San Francisco.

About $250,000,000 was spent during 1927 by the telephone companies in adding to their facilities. At the close of the year, telephone plant and equipment in the United States represented a total investment of approximately $3,500.000,000, and of this total about $3,100,000,000 represented the investment of the Bell system in telephone plant and equipment. Further progress was made in facilitating the purchase of Bell Telephone securities by small investors, and there was an increase during the year of more than 20,000 in the number of stockholders of the American Telephone and Telegraph Company (the parent company of the Bell System). At the end of 1927 this company had over 420,000 stockholders, doubtless more than any other company in the world, with average holdings of only about 26 shares each. More than 73,000 of the company's stockholders are Bell System employees.

The number of persons employed in the telephone business in the United States increased by about 6000 during 1927, reaching a total of approximately 375,000 at the close of the year. In addition, about 50,000 are employed in the manufacture of telephone equipment and supplies. Telephone traffic showed further expansion during 1927, with an average of 72,500,000 telephone conversations daily in the United States, an increase of about 2,500,000 as compared with the daily average during 1926. The average number of telephone conversations per person for the year was about 205.8.

Notable progress was also made in extending the range of telephone communication. Early in the year telephone service was established between the United States and Great Britain, conversations being carried by telephone lines to radio transmitting stations at Rocky Point, L. I., and Rugby, England, whence they are sent out across the Atlantic, received at Cupar, Scotland, and Houlton, Me., respectively, and again carried by telephone lines to their destinations. Later, service was opened between Great Britain and certain points in Canada and Cuba, the conversations passing through the United States and following the route above described. In September, 1927, telephone service was established between the United States and a number of the principal cities in Mexico, including Mexico City and Tampico. This was accomplished by connecting the long-distance lines of the Bell System at the Mexican border with lines newly constructed by the Mexican Telephone and Telegraph Co., a subsidiary of the International Telephone and Telegraph Corporation.

In April, 1927, television, as developed by the Bell Telephone Laboratories, Inc., was publicly demonstrated. Not only the voice, but the moving likeness of a distant speaker was transmitted to an audience in New York by telephone lines from Washington, and later by telephone and radio from Whippany, N. J. After being successfully demonstrated the device went back to the laboratories for further experimentation and improvement. See also RADIO TELEGRAPHY AND TELEPHONY.

TELETACTOR. See PHYSICS.

TELEVISION. See PHYSICS; TELEPHONE.

TELLURIUM. See CHEMISTRY, under *Biochemistry.*

TEMPLE UNIVERSITY. An institution of higher learning at Philadelphia, Pa., founded in 1884. The 1927 autumn term enrollment was 8727, distributed as follows: Liberal arts and sciences, 895; teachers college, 2854; elementary school, 99; commerce, 2685; theology, 53; law, 462; medicine, 212; pharmacy, 306; dentistry, 434; music, 171; chiropody, 37; university high school, 421; training school for nurses, 98. The summer school registration for 1927 was 1143. There were 527 members on the faculty. The income for the year totaled $1,181,650. The library contained 41,606 volumes. President, Charles E. Beury, LL.D.

TENNESSEE. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,337,885. The estimated population on July 1, 1927, was 2,485,000. The capital is Nashville.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Corn	1927	2,944,000	70,656,000	$58,644,000
	1926	3,099,000	85,222,000	56,247,000
Cotton	1927	948,000	345,000[a]	32,775,000
	1926	1,148,000	451,000[a]	22,550,000
Hay	1927	1,402,000	1,822,000[b]	27,114,000
	1926	1,452,000	1,828,000[b]	30,060,000
Tobacco	1927	91,000	71,485,000[c]	12,858,000
	1926	136,000	106,216,000[c]	11,153,000
Potatoes	1927	39,000	3,432,000	4,633,000
	1926	35,000	2,730,000	4,286,000
Sweet potatoes	1927	48,000	4,704,000	3,998,000
	1926	50,000	6,150,000	4,305,000
Wheat, winter	1927	528,000	3,696,000	5,187,000
	1926	440,000	7,920,000	10,771,000
Oats	1927	179,000	3,048,000	1,826,000
	1926	276,000	6,900,000	3,795,000

[a] bales, [b] tons, [c] pounds.

MINERAL PRODUCTION. Coal held its place in 1926 as the State's leading mineral product.

There were mined in that year 5,788,741 net tons of coal; in 1925, 5,454,011 tons. The product for 1926 was valued at $10,077,000. Clay products, for 1925, attained a total value of $3,941,395; for 1924, a value of $4,933,152. The iron industry of the State was active in 1926; there were produced 113,029 long tons of iron ore, as against 95,186 tons in 1925; in value, $2,544,825 in 1926 and $2,014,176 in 1925. Coke produced in by-product ovens totaled 118,624 short tons in 1926; 88,879 short tons in 1925. Its value for 1926 was $628,482; for 1925, it was $471,059. There was also produced in 1925 beehive coke to the amount of 127,609 short tons, valued at $690,041. Copper production in 1926 was 18,606,664 pounds; 19,788,234 pounds in 1925. Zinc production was 24,196,000 pounds in 1926; 32,152,000 pounds in 1925. Gold, silver and lead were also produced in minor quantities. The combined value of the production of these five metals in 1926 was $4,621,151, and $5,437,660 in 1925. Lime produced in the State and sold in 1926 totaled 183,000 (estimated) short tons; 175,685 tons in 1925. The value was $1,352,000 for 1926 and $1,344,508 for 1925. Of phosphate rock the State produced 464,240 long tons in 1925 and 388,697 tons in 1924; in value, $2,334,995 in 1925 and $1,976,188 in 1924. The total value of the State's mineral products, duplications eliminated, was $38,869,198 in 1925, and $35,354,525 in 1924.

FINANCE. As reported by the United States Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $14,309,409; their rate per capita was $5.82. They included $3,848,563 apportioned for education. Totals not included in the above, of $776,833 in interest and $10,251,539 in permanent improvement outlays, brought the aggregate of State expenditure to $25,337,781. Of this, $12,996,006 was for highways, $3,722,485 being for maintenance and $9,273,521 for construction.

Revenue receipts were $25,115,672, or, per capita, $10.22. Of their total, property and special taxes yielded 23.1 per cent, attaining a per capita rate of $2.36. Earnings of departments and compensation paid the State for officials' services furnished 10 per cent of revenue; 43.9 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $17,417,176, or $7.09 per capita. Property subject to ad valorem taxation bore a valuation of $1,693,048,022. State taxes levied thereon were $4,232,620 or $1.72 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 4,058.66. There were built in 1927, according to the annual statistics of the *Railway Age*, 2.86 miles of second track.

EDUCATION. The Legislature made an appropriation of $1,000,000 to aid in the construction or repair of rural public school houses. The school population of the State in the scholastic year 1925–26 was reckoned at 658,695. There were enrolled in the public schools 625,644 pupils. Of these 447,915 were in the elementary schools and 177,729 in high schools. Expenditure for public school education totaled $13,437,477. The salaries of teachers averaged $770.40.

CHARITIES AND CORRECTIONS. Among the institutions for the custody or care of individuals in charge of the State were two State prisons, a girls' vocational school, three hospitals for the insane, schools for the deaf and dumb, and a home for Confederate veterans.

LEGISLATION. The legislature convened in regular biennial session January 3. In its acts it followed in part the recommendations of Governor Peay. The Governor's system of highway building from current revenue was abandoned, however, to the extent of authorizing bond issues to supplement revenue for this purpose. Bond issues were authorized to the amount of $5,000,000 for State bridges, eight in number; $4,500,000 for other bridges; $2,500,000 for buildings for the University of Tennessee; $10,000,000 for highway construction; $1,000,000 for elementary school buildings; $1,500,000 for purchase of lands in the Smoky Mountain area for park purposes. (See PARKS, NATIONAL.) A reorganization bill was enacted, making extensive changes in the organization of the State government and doing away with a number of its departments and bureaus.

There was passed a measure to assure to public school pupils throughout the State a minimum period of eight months' instruction yearly; and in order to furnish the revenue for the aid to rural schools that this involved, a tax was placed on sales of tobacco. An act rendered permanent the 10 per cent tobacco sales tax previously passed as a temporary measure by the 1925 Legislature. The Governor vetoed a so-called bonus measure, granting to every member of the legislature an extra allowance of $750. His veto failed to prevent the enactment, by repassage, of this measure, and he brought suit as a taxpayer to prevent the payment. The price of gasoline was regulated by enactment. The legislature adjourned April 26. See WOMEN IN INDUSTRY.

POLITICAL AND OTHER EVENTS. The State Supreme Court rendered a decision January 15 in the Scopes case, in which John T. Scopes, a Dayton, Tenn., high-school teacher, had been convicted in 1925 under the law against the teaching of the theory of evolution. The Supreme Court voided the fine of $100 against Scopes, on the ground that the sentencing judge had not possessed the power to impose a fine in excess of $50, save if the amount were set by the jury. It was recommended that the State Attorney enter a nolle prosequi, "in the interest of the peace and dignity of the State," and the prosecution was accordingly abandoned. The court, by majority opinion, declared the anti-evolution statute itself constitutionally sound. Governor Austin Peay, inaugurated in January into his third term, died suddenly October 2. Henry H. Horton, Speaker of the State Senate, succeeded him, being inaugurated on the following day. An enactment to regulate the price of gasoline was fought in the Federal courts by three large oil companies which sought an injunction against it immediately after the law went into effect April 8.

OFFICERS. Governor, Henry H. Horton; Treasurer, John F. Nolan; Comptroller, Edgar Graham; Secretary of State, Ernest Haston; Auditor, O. S. Shannon; Attorney-General, L. D. Smith; Commissioner of Education, P. L. Harned.

JUDICIARY. Supreme Court: Grafton Green, Chief Justice; Associate Justices, A. W. Chambliss, Colin P. McKinney, Frank P. Hall, William L. Cook.

TENNESSEE, UNIVERSITY OF. A non-sectarian coeducational institution of higher education at Knoxville, Tenn., with colleges of medicine and dentistry and a school of pharmacy at Memphis, and a junior college at Martin; founded in 1794. The autumn enrollment for 1927 was as follows· Knoxville departments, 2090; Memphis departments, 635; Martin Junior College, 120; total, 2845. There were 308 members on the faculty. The land grant amounted to $400,000 and the income for the year 1926–27 was over $2,000,000. The library contained 85,364 volumes. President, Harcourt A. Morgan, LL.D.

TENNIS. The seven-year reign of the United States in the lawn tennis world came to an end in 1927 and France assumed the leadership in a game which probably has a larger following in every land than any other, with the possible exception of golf. J. René Lacoste, Henri Cochet, Jean Borotra and Jacques Brugnon comprised the French team which captured the Davis Cup, emblematic of world supremacy in tennis. Further to emphasize the complete overthrow of the United States, Lacoste captured the national outdoor singles, Borotra won the indoor singles crown, and Borotra and Brugnon carried off the indoor doubles honors. Miss Helen Wills of California alone prevented the tennis season from being an utter rout for United States players. Miss Wills won the Wimbledon championship and then regained the United States title which she had been forced by illness to relinquish the previous year. There was yet another consolation for America in the recapture from England of the Wightman Cup, for which teams of women compete.

Twenty-five nations challenged for the Davis Cup, 21 in the European zone and four in the American. France captured the European zone finals and Japan was victorious in the American series. In the interzone final, France made a clean sweep of the matches with Japan, winning five straight and thus becoming the challenging nation. The results of the interzone final follow:

J. René Lacoste, France, defeated T. Harada, Japan, 6–1, 6–1, 6–2; Henri Cochet, France, defeated Y. Ohta, Japan, 6–0, 6–3, 6–2; Jacques Brugnon and Cochet, France, defeated Harada and T. Toba, Japan, 9–7, 6–1, 6–2. The remaining two matches were defaulted by Japan.

The results of the matches in the challenge round follow:

J. René Lacoste, France, defeated W. M. Johnston, United States, 6–3, 6–3, 6–2; W. T. Tilden, United States, defeated Henri Cochet, France, 6–4, 2–6, 6–2, 8–6; Cochet defeated Johnston, 6–4, 4–6, 6–2, 6–4; Lacoste defeated Tilden, 6–3, 4–6, 6–3, 6–2; Tilden and F. T. Hunter defeated Jean Borotra and Jacques Brugnon, 3–6, 6–3, 6–3, 4–6, 6–0. Final score: France 3, United States 2.

The holders of the various United States championship titles at the close of 1927 were: Singles, J. René Lacoste; doubles, W. T. Tilden and F. T. Hunter; women's singles, Miss Helen Wills; doubles, Mrs. L. A. Godfree and Miss E. Harvey; clay court singles, W. T. Tilden; clay court doubles, John Hennessey and Lucien Williams; indoor singles, Jean Borotra; doubles, Borotra and Jacques Brugnon; intercollegiate singles, Wilmer Allison, University of Texas; doubles, John Van Ryn and Kenneth Appel, Princeton.

The Wimbledon, England, men's singles were won by Henri Cochet of France, and the doubles by W. T. Tilden and F. T. Hunter of the United States. The Wimbledon women's singles were captured by Miss Helen Wills of the United States and the doubles by Miss Wills and Miss Elizabeth Ryan of the United States.

TETANUS. In Germany, despite the swing to republican ideas, the law appears to be very absolute in fixing responsibility for deaths from lockjaw. According to a forensic case narrated in the *Münchener Medizinische Wochenschrift* for August 12, upon a death from this cause the government prosecutor at once proceeds to inquire into the possibility of neglect in some quarter, medical or insurance. In the case of a boy of 15 who pricked his foot in climbing a barbed-wire fence, dying in a few days of tetanus, it was found that preventive antitoxin had not been used, as the wound was slight and not at all suspicious. A university professor of surgery testified that he would have made use of the antitoxin in such a case, and that in all likelihood it would have saved the boy's life. The attending physician and an accident insurance company were jointly adjudged culpable of neglect, and by arrangement out of court the two responsible parties agreed to pay a certain sum in damages. The physician apparently has no choice in the matter, for, since lockjaw often follows trifling and clean wounds, it is held that all of those victims who succumb to the disease might have been saved by a slight effort. The beliefs and judgments of the medical man go for naught, and, although in the small clean wound the chance of lockjaw is remote, this chance shall not be taken.

TEXAS. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 4,663,228. The estimated population on July 1, 1927, was 5,397,000. The capital is Austin.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops, in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Cotton	1927	16,270,000	4,280,000 [a]	$413,020,000
	1926	18,374,000	5,628,000 [a]	308,912,000
Corn	1927	5,189,000	119,847,000	77,576,000
	1926	3,844,000	106,863,000	64,118,000
Wheat, winter	1927	1,850,000	17,945,000	21,713,000
	1926	1,802,000	32,796,000	39,355,000
Grain sorghums	1927	2,654,000	55,734,000	36,227,000
	1926	2,854,000	71,350,000	39,242,000
Hay	1927	1,024,000	1,282,000 [b]	13,968,000
	1926	1,036,000	1,392,000 [b]	16,150,000
Potatoes	1927	35,000	2,310,000	3,812,000
	1926	30,000	2,100,000	4,200,000
Sweet potatoes	1927	183,000	11,970,000	8,978,000
	1926	92,000	8,556,000	8,128,000
Oats	1927	2,003,000	42,063,000	19,770,000
	1926	1,964,000	83,666,000	31,793,000
Rice	1927	161,000	6,279,000	5,400,000
	1926	166,000	6,142,000	6,756,000
Barley	1927	195,000	3,120,000	2,184,000
	1926	174,000	6,090,000	3,228,000

[a] bales, [b] tons.

MINERAL PRODUCTION. Third in rank among the States in production of petroleum, Texas notably increased its output in 1926, the total produced in the year being 163,933,000 barrels (estimated) as against 144,648,000 barrels in 1925; in value, $292,800,000 for 1926 and $262,270,000 for 1925. Production of natural gas was 134,872,000 M cubic feet in 1925, the latest year of available statistics, and in 1924 was 107,247,000 M cubic feet; in value, $19,715,000 for 1925 and $13,748,000 for 1924. From natural gas in 1926 were extracted 232,200,000 (estimated) gallons of gasoline; 214,092,000 in 1925. This product had a total value for 1926 of $21,900,000; for 1925, of $22,606,000. Much the greater part of the sulphur mined in the United States (1,890,027 long tons in 1926 for the entire country) came from Texas. The cement production of the State in 1926 was 5,007,374 barrels; 4,858,212 in 1925. The shipments were valued at $9,522,701 for 1926 and for 1925 at $8,729,046. Clay products for 1925 amounted to $6,298,045; for 1924, to $5,469,908. Coal mined in 1925 was 1,008,375 tons. Coal produced in 1926 had a total value of $1,751,000; in 1925, of $1,566,000. Gypsum, sand and gravel and stone were important products. The total value of the mineral production of the State in 1925, duplications eliminated, was $351,211,629; in 1924, $272,729,023.

Metal mines in Texas in 1927 produced 400 ounces of gold, 1,000,000 ounces of silver, and 500,000 pounds of lead, according to the U. S. Bureau of Mines. The greater part of the production came from the Presidio mine at Shafter, Presidio County. This mine had been a consistent producer since 1885. The total production of Texas from 1885 to 1927, inclusive, mostly from this mine, was 18,987,000 ounces.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Aug. 31, 1927, were $52,700,659; their rate per capita was $9.98. They included $22,541,673 apportioned for education. Totals not included in the above, of $215,154 in interest and of $13,527,461 in permanent improvement outlays, brought the aggregate of State expenditure to $66,443,274. Of this, $19,384,671 was for highways, $8,070,436 for maintenance and $11,314,235 for construction.

Revenue receipts were $72,106,131, or per capita, $13.66. Of their total, property and special taxes yielded 40.6 per cent, attaining a per capita rate of $5.54. Earnings of departments and compensation paid the State for officials' services furnished 5 per cent of revenue; 34.3 per cent was derived from sale of licenses, chiefly on incorporated companies and motor vehicles, and from a gasoline sales tax.

Net State indebtedness Aug. 31, 1926, was $4,412,566, or $0.84 per capita. Property subject to ad valorem taxation bore a valuation of $3,674,414,327. State taxes levied were $23,883,692, or $4.52 per capita.

Transportation. The total number of miles of railroad line in the State Jan. 1, 1927, was 16,266.47. There were built in 1927, as reported by the *Railway Age* 93.18 miles of first and 74.43 miles of second track.

Education. A rate of $15 per capita for all children between seven and 17 years was established by enactment, to govern the apportionment of grants from the school fund. Appropriations for the ensuing two years at the rate of $1,500,000 a year were made for the aid of school districts having fewer than 400 pupils each, this being designed to provide a six-months term. The minimum levy for school tax, according to State Superintendent S. M. N. Marrs, in the *Journal* of the National Education Association, was set at 7½ mills. State appropriation of $100,000 was made to pay high-school tuition elsewhere for students in districts having no high schools. County boards of education were authorized to borrow where necessary in order to pay teachers' salaries without delay. A constitutional amendment was submitted that would provide longer terms for school officials.

Charities and Corrections. The central agency in State welfare work, as organized in 1927, was the State Board of Control. It consisted of three members, one appointed every second year for a six-year term. This body exercised control over 17 State institutions. These, with the numbers of their inmates, were as follows: Austin State Hospital, 1991; San Antonio State Hospital, 2160; Terrell State Hospital, 1874; Rusk State Hospital, 989; Wichita Falls State Hospital, 926; Abilene State Hospital (for epileptics), 756; Tuberculosis Sanatorium, 439; Juvenile Training School, Gatesville, 877; Girls' Training School, Gainesville, 173; Home for Dependent and Neglected Children, Waco, 139; State Orphan Home, Corsicana, 559; School for the Deaf, Austin, 508 pupils; School for the Blind, Austin, 229; School for Deaf and Blind (colored), Austin, 200; Confederate Men's Home, Austin, 338; Confederate Women's Home, Austin, 95. An institution for the feeble-minded, the Austin State School, with 604 inmates, was also under the Board's supervision. The inmates of the State prison and reformatory institutions Jan. 1, 1927, numbered 3225, according to the statistics of the Department of Commerce, and the number of those admitted to these institutions in 1926 was 1979.

Legislation. The legislature convened in regular biennial session in January and adjourned March 16. There were offered 1140 bills and 66 joint resolutions, and about 300 bills, and eight joint resolutions, were passed. Both appropriations and revenue were heavily increased. For the benefit of State highway construction, the sales tax on motor gasoline was raised to 3c. a gallon, from 1c., with the provision that after a year the rate should fall to 2c. A constitutional amendment to increase the power of the legislature with regard to taxation, and so enable it to reshape the tax system, was voted, for submission to the electorate. It was proposed that the legislature should be authorized to provide for State needs by special taxation, and should leave the direct tax to the counties. Another amendment submitted to the people was designed to enable the legislature to abolish the fee remuneration for county officers and to substitute salaries; this amendment was inspired in part by the United States Supreme Court decision declaring the fee remuneration of certain quasi-judicial officials in Ohio unconstitutional, and in part by charges that officials had abused the fee system in Texas.

Further constitutional amendment proposals were voted, to provide a State Supreme Court of nine members; permitting the legislature to set the salaries of all State officials, provided that the salary of the Governor should not exceed $10,000 a year, with allowance for actual traveling expenses; and providing ten-year terms for school trustees and for regents of the higher educational institutions. The right was granted by statute to counties to use their own discretion in the choice and purchase of school textbooks, using in the purchase the money provided by the existing State allotment. A notable change in the criminal code was the elimination of the crime of manslaughter, with the intent that all voluntary homicides should be punished as murder.

The amnesty granted to ex-Governor James E. Ferguson by the session of 1925 was repealed. The Federal Sheppard-Towner Maternity act was accepted, in regard to the fulfillment of the provisions rendering its benefits applicable to the State. A libel law was enacted which rendered the actions taken at political meetings, and school board and other meetings of public interest, privileged matter in regard to newspaper reports. Cities received power to pass ordinances limiting the height of buildings and their proximity to the street. Motor buses were placed under the control of the Railroad Commission.

A special session of the legislature convened May 9. It was rendered necessary, primarily by the failure of the regular session to pass important appropriation measures. It provided $9,577,792 for the support of the State eleemosynary institutions in the ensuing biennium, and $11,000,000 in a departmental appropriation bill, and dealt also with highway and supplemental school aid and prison and civil service legislation.

Political and Other Events. Gov. Miriam A. Ferguson ended her term January 18, granting some 143 pardons or paroles on its last day, and Dan Moody was inaugurated Governor. The prosecution of peonage cases in Willacy County led to convictions and prison sentences upon a sheriff and four other defendants, March 12. Houston added some 10,000 to its population April 27, when the City Council passed an ordinance annexing Park Place, Kensington and several other communities. Negotiations were carried on for the merging of the City of Harrisburg with Houston.

Officers. Governor, Dan Moody; Lieutenant-Governor, Barry Miller; Secretary of State (appointive); Treasurer, W. Gregory Hatcher; Comptroller, S. H. Terrell; Attorney-General, Claud Pollard.

Judiciary. Supreme Court: Chief Justice, C. M. Cuerton; Associate Justices, T. B. Greenwood, William Pierson.

TEXAS, University of. A State institution of higher education at Austin, with a medical branch at Galveston and a college of mines at El Paso. The main university opened in 1883. For the autumn term of 1927 the enrollment totaled 5885, and for the summer session, 3275. There were 429 members on the faculty, an increase of 24 over 1926. The endowment resources of the institution amounted to $17,515,000, and the income from legislative appropriation, fees and income from endowment was estimated at $2,682,399. The library contained 388,016 volumes. President, Harry Yandell Benedict, Ph.D., LL.D.

TEXTILE INDUSTRY. The American textile industry in 1927, according to a summary made by the *Textile World* (New York) experienced a year of ups and downs. From a state of depression at the beginning of the year there was a general recovery extending through August, which, as regards the total volume of textile manufactures, involved an estimated increase of about 12 per cent. In August and October there was a decline which, however, was checked in November and December, when there were indications of improvement. Wholesale dry-goods sales in 1927 were estimated at 4 or 5 per cent below the 1926 level, while department store sales averaged about 2 per cent lower than in the previous year. The wool-manufacturing industry was relatively stable during the year, averaging about the same as in 1926, though at no time did the activity fall to so low a point as had been recorded in that period. The operating margins of the various wool manufactures declined during the year. Cotton manufactures made progress between January and October, when there were clear indications of over-production, with a resulting slump. The mill consumption of cotton showed an increase during the first part of the' year, notwithstanding the increased prices of raw cotton. In the early autumn a turn in the situation came, with a general curtailment both of purchase and production. There was also a decline in the silk industry; it was more decided as regards the total value than the quantity produced, which did not show any marked decrease. A reduction in spindle activity was noted, but the broad loom production held fairly steady. Imports of raw silk increased during the year, and the supplies available at the end of 1927 were in excess of the requirements. There was a decline in the value of silk textile production which, of course, was an indication of over-production.

New Mill Construction. As will appear by the accompanying table showing new construction for ten years, taken from the annual summary compiled by the *Textile World* (New York), new mill construction in the United States for 1927 was practically the same as in the previous year, and it marked the lowest point since 1897. There were fewer new enterprises in cotton and silk manufacturing than in 1926, but there was an increase in knitting and miscellaneous fields over the previous year. Of the 23 new cotton mills built during the year 13 were in the South, five being in North Carolina, three in South Carolina, two in Georgia and Arkansas, and one in Texas. In 1927, five new cotton mills were built in Pennsylvania.

Among the new wool mills, ten in number, Rhode Island led with three, followed by Massachusetts and Pennsylvania with two each; while Georgia, West Virginia, and Canada each had one. Seventy new knitting mills were constructed during 1927, of which 23 were located in North Carolina and the same number in Pennsylvania. New Jersey had five new knitting mills. Most of these enterprises were plants for the production of full-fashioned goods.

There were only 19 new silk mills reported for 1927, as against 37 in 1926. Pennsylvania was credited with seven, New Jersey with six, North Carolina with five, and Massachusetts with one.

Five new rayon plants were reported during the year, three in New Jersey, one in North Carolina, and one in Tennessee. Of the 4 new mills reported under the head "Miscellaneous," 28 were dyeing, bleaching and finishing plants, six were fibre mills, five mattress plants, four braid and odd-fabric mills, and two linen and jute mills.

NEW TEXTILE MILLS BUILT IN THE UNITED STATES, 1918–27

	1927	*1926*	*1925*	*1924*	*1923*	*1922*	*1921*	*1920*	*1919*	*191*
Cotton	23	34	40	89	74	57	46	89	74	2
Wool	10	9	17	15	38	34	36	30	54	24
Knitting	70	52	84	57	73	94	103	59	84	120
Silk	19	37	38	22	26	24	31	71	61	49
Rayon	5	8	11	..	..	..	..	.	..	..
Miscellaneous	46	38	49	53	21	29	26	15	16	27
Total	173	178	239	186	232	238	242	264	289	254

The tendency of Northern cotton mills to establish branches in the South continued in 1927, though to a less extent than in previous years. Nine additional Northern mills established Southern branches, seven of these going from New England, one from New Jersey, and one from New York. These mills totaled somewhat less than 100,000 spindles and 2000 looms. There was also manifested a tendency to move to the South the machinery of Northern mills in the processes of liquidation, and there were also a number of new enterprises, some of which were to be equipped with machinery from Northern mills. Since 1921 approximately 80 cotton mills in New England, New York and New Jersey had gone out of business and liquidated, or were in process of liquidating their plants. In some of these the machinery had been scrapped or sold in small units to other mills. At the end of the year it was estimated that there were about 1,000,000 spindles idle in Northern mills that probably would not start again, and there were about 700,000 spindles moved South by Northern plants in the previous six years which were operating under the existing management, and probably about 300,000 spindles taken from Northern plants by Southern mills. It was further stated that when these spindles were set up in the South they were usually operated day and night and thus became equivalent to 2,000,000 spindles. In the North it was estimated that there had been a decline of 2,800,000 spindles since 1921, when the movement to the South first began, so that the decrease in the spindleage in Northern mills due to transfer and scrapping was estimated at 14 per cent.

The United States Census Bureau reported 36,336,512 spindles in place in November, 1927, of which 18,155,218 were in Northern states and 18,381,294 in the cotton-growing states. In 1921, out of a total of 36,047,000 spindles, 20,338,379 were in the North, but at no time since 1921 had more than 34,500,000 (in 1923) been in operation, and usually not over 33,000,000. An estimate of the real spindleage in the North was given as about 17,520,000, though the census reported 18,155,218 spindles in place in Northern mills.

The total value of textile exports from the United States in 1927 was $1,022,466,848, as compared with $1,010,268,843 in 1926 and was less than in 1925, when a total of $1,278,370,472 was reached. Of the 1927 exports, manufactures of cotton amounted to $109,065,845, as compared with $109,817,444 in 1926. The total value of wool manufactures exported in 1927 was $3,977,135, as compared with $3,954,187 in 1926. The manufactures of silk exported were $15,297,829 in value, as compared with $17,788,377 in the previous year. Manufactures of rayon exported in 1927 totaled in value $7,377,562, as compared with $7,680,524 in 1926. Exports of miscellaneous textile products in 1927 had a value of $22,549,894, as compared with $22,258,389 in 1926.

The imports of textiles in 1927 totaled $954,128,393, as compared with $999,672,336 in 1926. This included unmanufactured raw materials. The manufactures imported were as follows: Cotton, 1927, value, $60,798,384; in 1926, value, $60,697,159; wool, in 1927, value $64,195,766; in 1926, value $59,194,465; silk, 1927, value $42,157,958; in 1926, value $40,569,818; artificial silk or rayon, 1927, value $18,091,301; in 1926, value $13,898,990. See COTTON; RAYON; SILK; WOOL.

THEATRE. The theatrical year of 1927 in the United States found itself gazing back upon an exciting and interesting half year as January dissolved memories of the pre-Christmas slump and the holiday rush, while the half year ahead came into view. *An American Tragedy* and *Gentlemen Prefer Blondes* had been announced with enthusiasm by their producers, and had been, inevitably, disappointing, *The Captive* had caused its little furore and was being "investigated," and *Broadway* was setting ticket price records among the speculators. The half year and the year to come were not to be counted great in the annals of the theatre, but theatrical prosperity continued, and the plays that scored successes were to have a long continued financial reward.

Prosperity in the theatre evidences itself in length of runs for successful plays rather than in multiplication of successes, which is quite logical, after all. The best "shows" are, nineteen times out of twenty, the best plays. Genius and sincerity in drama, once given adequate production, are recognized by the patronizing public, irrespective of what may draw the crowd for a while.

New York in 1927 was, as usual, the theatrical heart of the United States; every play of any consequence or success reaches that market ultimately. To this reviewer, it seems today the centre of the international theatre as well. Certainly, the Theatre Guild started to prove the case by beginning the dramatic year on January 3 with a splendid dramatization of Dostoievsky's *The Brothers Karamazov*—the Jacques Copeau and Jean Croue version, translated from the French—giving the matter two lingual removes from its native tongue.

Everyone in this drama of failure, infatuation and emotional stress is a little mad. It seems incredible that anyone without a previous acquaintance with the novel should know what it was all about; but delineation of character and creation of mood, gave Dudley Digges and Edward G. Robinson abundant scope for fine portrayal, while Alfred Lunt and Lynne Fontanne vibrated in unfamiliar accents. It had but a moderate popular appeal. Beautifully staged and directed by Copeau, it was up to the high Guild standards of production.

Tommy, a not unusual but pleasantly senti-

"IN ABRAHAM'S BOSOM," THE PULITZER PRIZE PLAY OF 1927

BY PAUL GREEN; PRODUCED BY THE PROVINCETOWN PLAYERS, NEW YORK CITY

mental comedy, did what such comedies invariably do—scored a comfortable success running well into the year. Then Mrs. Fiske gave a short revival of *Ghosts*, and did Ibsen in modern clothes and the Fiske manner.

Kenyon Nicholson wrote a play of circus side show life that opened as *The Barker*, after various other names had been proposed; *Ballyhoo*—which opened ten days earlier and closed almost at once—had preempted the first choice of titles. *The Barker* was excellent, if theatrical, entertainment, ably pieced together of patiently recorded fictions in the popular mind with regard to side-show life.

The Cradle Song, from the Spanish of the Sierras, was the first of Eva Le Gallienne's Civic Repertory openings. It had a quiet popular appeal and became part of the permanent repertoire of that theatre. The sentimental treatment of convent life is effective.

Saturday's Children, Maxwell Anderson's best individual play, opened for a successful run late in January. Saturday's children, born to labor, are a young business couple who experience a much more plausible "first year" than Frank Craven pictured a few years ago. Ruth Gorden carried the star rôle and proved that she is not only a comedienne but an actress of emotional appeal. This play came close to receiving the Pulitzer prize, and was another argument against prizes, committees and solemn judgments. However, *Saturday's Children's* story of the young couple's struggle to find a solution of the economic problems presented by life on $40 a week, and the "companionate marriage" philosophy in the background, pleased New York's fancy and did very well indeed.

Trelawny of the Wells, Arthur Wing Pinero's romance of the theatre in the eighties—with little enough of the theatre in it—was revived by George Tyler. It has always been a favorite vehicle for all-star casts, and has been used by the Players Club. John Drew (q.v.), polished and distinguished actor of the man-of-the-world rôles of other days, played Sir William Gower. It was well received and ran for 56 performances in New York. In the cast were such names as Peggy Whiffen, Pauline Lord, Henrietta Crosman, Wilton Lackaye, Otto Kruger, O. P. Heggie and others almost as well known. On tour the play had better success, and it was while in California with the company that John Drew, of the theatre to the end, played his last scene in the drama of life. Peggy Wood's little book gives a splendid account of John Drew and his last tour.

Jane Cowl opened in *The Road to Rome*, a dubiously historical romance by R. E. Sherwood. A delicately handled, although rather heavily satirical play, giving an excellent background for Miss Cowl's charm, it was one of the successes of the season.

The Little Theatre Tournament now become an annual event, opened on May 2, conducted by Walter Hartwig. From North and South and West came competent Little Theatre groups, evidence of the strength of a movement which is a more positive guarantee of theatrical vitality than even Broadway. From England came the Welwyn Garden Theatre Society. The long trip was evidence of enthusiasm and confidence—and it was justified by the winning of the Belasco trophy. Their production was *Mr. Sampson*, by Charles Lee. Other awards went to the Knigwa Players, Little Negro Theatre of Harlem, New York City; the Brookside Open-Air Theatre, Mount Kisco, N. Y.; and a group from the Memphis Little Theatre of Memphis, Tenn.

A revival of *Kempy*, the opening of the annual (and in this case regrettably final) *Grand Street Follies*, and the Players' production of *Julius Cæsar* were all that were at all notable in the dozen or more plays on the boards as the season passed on into the summer siesta.

The annual Players' production is an event in New York. The most distinguished American actors' organization, it includes on its roster almost every name important in the current theatre of the United States, and its history is celebrated and honorable. John Drew was president until his death. Walter Hampden succeeded him in a post which is by custom held for a lifetime. The annual productions are limited by the very abundance of talent available. Plays with a multitude of good parts are not frequent in this day of high salaries, star parts and long runs. Naturally, call is made upon Shakespeare, Sheridan and the nineteenth century dramatists.

In Abraham's Bosom, a play produced quietly at the Provincetown Playhouse on Dec. 30, 1926, and scarcely noticed at the time the 1926 Year Book went to press, was to win the Pulitzer award. The Provincetown Players and Paul Green filled the exact specifications of the Pulitzer bequest far more completely than did *They Knew What They Wanted*, two years ago, for example.

This study of negro life in eastern North Carolina is honest and vital. It had little popular success—in fact, it was withdrawn before the Pulitzer award, then reopened and played to better business. Stirring, thoughtful, intense, it is the saga of the negro Abe, his hopeless aspirations for his race, his titanic struggles against conditions, his defeat and death. *Porgy*, of later production, another fine play of negro life, lacks the social motif implicit in *In Abraham's Bosom*. Naturalistic dialogue is no better anywhere than in these two plays.

In September the more interesting half of the year began. The seeds of inspiration flung off by *Broadway*, which was still going prosperously enough as the year ended, were developing in the rich soil of the box office demand. And the "hard-boiled" year of the theatre began. Certainly, the American theatre was becoming no place for weak nerves and ailing hearts. Gangsters and gun play, murder and low intrigue in which even the audience must play an unprotesting part—as in *The Spider* and *The Trial of Mary Dugan*—made hair rise on end and caused undue wear and tear on theatre upholstery.

"Hard-boiled," a typically American phrase, describes it all. On September 19, began *The Trial of Mary Dugan*. The lady continued on trial until the end of the year, and murder was investigated nightly at the National Theatre. *The Racket*, a tough slice of Chicago and the newspaper world, was another *Broadway* suggestion, with only one woman in the cast by way of variation. *Nightstick* and *Interference* were concerned with crime up to and including murder.

Next to gangster warfare, the most popular subject of the second half-year was theatrical life seen back-stage and off-stage. Again, the influence of *Broadway* was suspected. *Burlesque* furnished color and troubled love in the burlesque world here presented—and perhaps burlesqued. In *The Shannons of Broadway* James Gleason and his mother gave an appealing and theatrical comedy of vaudeville people, and late in the year *The Royal Family,* of which Edna Ferber was co-author with George Abbott, gave further pathetic consideration of the lives that live only in and for the theatre.

One turned back mentally to *Six Characters in Search of an Author,* to *He Who Gets Slapped,* to *The Torchbearers,* for material in contrast with this passion for introspection by Broadway. Certainly, it was topical material, but naturally it had limitations in exploitation in the same vein.

Katherine Cornell found a good part in *The Letter,* a tawdry melodrama of murder and passion, by Somerset Maugham, and shortly took it on the road. Although an unimpressive play, it gave Miss Cornell an opportunity to show us once more that she was one of the most important actresses of the day.

To this reviewer the four real successes and the four most interesting plays of the fall of 1927 were Galsworthy's *Escape,* Ann Bridgers' and George Abbott's *Coquette,* the Heywards' *Porgy* and Philip Barry's *Paris Bound.*

Galsworthy announced *Escape* as his last play. It is thoroughly typical. The audience considers a problem in social attitudes, presented impartially and in detail. As usual, no solution is offered or implied. A fine young fellow is jailed for the accidental killing of a policeman. He escapes from the prison farm. We see him in half a dozen scenes as a fugitive; we desire him to escape. We see him come from hiding and give himself up to save a clergyman from the need of making a direct falsehood. There is no "love interest." Leslie Howard gave an unusual and sensitive performance in the part of the fugitive. It was a quiet and intelligent presentation, representatively Galsworthy, but without the force of *Justice* or even of *The Silver Box* and with, as usual, the audience as an aider and abettor of technical criminals.

Ann Bridgers, a Southern girl, gave—with some final aid from George Abbott—in *Coquette* what was perhaps the best play of the year. Helen Hayes and Elliot Cabot move superbly from high comedy to heart-wrenching tragedy in this story of a little Southern coquette and her lover.

The South dominated the serious theatre in 1927. Perhaps it is the most vital with the older American tradition to which our playwrights almost instinctively turn for material. But Du Bose and Dorothy Heyward's *Porgy* is more than Southern. It is a study of the South Carolina negro, product of the rice fields and the wharves. Porgy, a crippled darky beggar, lives in Catfish Row. With his life and environment and the high poetry of simple, emotional dialect, the Guild created a colorful and important theatrical presentation from what at first blush does not seem overly dramatic material. It bears the unmistakable stamp of authenticity.

Philip Barry's most successful play, far more successful than his serious and beautiful *John* of an earlier time in the year, or the whimsical *White Wings,* or even that lyrically lovely play *In A Garden,* was *Paris Bound.* An amusing and intelligent discussion of the possibly comparative unimportance of matrimonial infidelity, it was a highly civilized and polished piece of writing, performed with a finish that made it one of the notable theatrical events of the year.

After brief mention of these four there is but little left to chronicle. A most gallant revival of *The Taming of The Shrew* used modern dress, and such modern contraptions as firearms and an automobile. It was surprisingly amusing, and even more surprisingly successful, with Basil Rathbone and Mary Ellis as Petruchio and Katharine.

Walter Hampden turned to Ibsen and did, again, *An Enemy of the People.* He has created his own public, and to it even this not too important Ibsenism appealed. Dr. Stockman is a good Hampden vehicle, and the actor's choice of the play was natural. On the whole, it had a distinctly cordial welcome, another tribute to Mr. Hampden's ability.

Foreign invasions were few. Max Reinhardt's beautiful production, in German, of *A Midsummer Night's Dream,* and *Danton's Tod,* especially, were remarked. The Argentine players, headed by Camille Queroga, appeared in repertoire at that favorite home of the wanderers, the Manhattan Opera House.

So much for the more serious theatre. In musical comedy—and what has been called musical tragedy—there was unusual prosperity for some. The hits of the year were *Hit The Deck, Rio Rita, The Five o'Clock Girl, Good News, Funny Face* and *Show Boat.* Gilbert and Sullivan were again presented by Winthrop Ames in *Iolanthe, The Mikado* and *The Pirates of Penzance.*

See *Drama* under FRENCH LITERATURE; GERMAN LITERATURE; SCANDINAVIAN LITERATURE, and SPANISH LITERATURE. Also LITERATURE, ENGLISH AND AMERICAN.

THEOSOPHICAL SOCIETY, AMERICAN. The American division of the Theosophical Society, a world-wide organization founded in 1875 by Mme. Helena P. Blavatsky and Col. Henry S. Olcott. World headquarters were later established at Adyar, India, near Madras. In 1927 branches existed in forty-two nations, on five continents. In North America and the Antilles there are five national divisions of the international Theosophical Society, each taking its designation from the region in which it exists, the Canadian, Mexican, Cuban, Porto Rican and that of the United States, formerly known as the American Section of the Theosophical Society. The American Theosophical Society had 254 local lodges throughout the nation in 1927.

The objects of the Society are: To form a nucleus of the universal brotherhood of humanity, without distinction of race, creed, sex, caste, or color; to encourage the study of comparative religion, philosophy and science; to investigate the unexplained laws of nature and the powers latent in man. It is composed of students, who are united by their approval of the society, by their wish to remove antagonisms due to religion and to draw together men of good will whatsoever their religious opinions, and by their desire to study religious truths and to share the results of their studies with others. The headquarters were moved to Wheaton, Ill., in 1927. The President of the Society for the year was L. W. Rogers.

THEOSOPHY. The Theosophical movement was founded in New York City in 1875, by Mme. Helena P. Blavatsky, whose teachings, given out under the name of Theosophy, were not new, but were a restatement of part of the unchanging body of truth which underlies all religions. The fundamental propositions of Theosophy are: (1) The existence of a boundless, immutable principle, inconceivable by the finite mind, which is the causeless cause of all existence; (2) the universal operation of the law of action and reaction, evidenced by the eternal succession of periods of manifestation and dissolution of universes, as by sleeping and waking, life and death, of man; and (3) the fundamental unity of all souls, and the gradual perfecting of every soul by self-effort through many lives, each individual having the circumstances, opportunities and character he has himself earned. The objects for which the Society was founded were the formation of a nucleus of universal brotherhood, the study of ancient and modern religions, philosophies and sciences, and the investigation of the unexplained laws of nature and the powers latent in man.

During 1927, Theosophy Hall, a large and dignified structure, was built at Los Angeles, Cal., and dedicated to the cause of Theosophy and the service of man. The movement for the return to the teachings of Theosophy as presented by Madame Blavatsky, as distinguished from the many departures therefrom, has spread steadily. Considerable activity in this direction has been evident, particularly in Holland, where an independent group of Amsterdam Theosophists disseminated *A Call for Studying the Original Theosophy*. William Q. Judge's *An Epitome of Theosophy* was translated from English into French during 1927, as was also *Letters That Have Helped Me*. The first volume of Charles Johnson's translation of *The Great Upanishads* was issued, and a complete vindication of Madame H. P. Blavatsky (in the form of a critical analysis, by William Kingsland, of the 1885 Report of the Society for Psychical Research on the phenomena connected with her) was published in England under the title, *Was She a Charlatan?*

In 1927, also, a reprint of the original edition of Madame Blavatsky's *The Voice of the Silence* was published in Peking, under the auspices of the Chinese Buddhist Research Society, with the indorsement of the Tashi Lama of Tibet.

THEREMIN, Ernest. See Physics.

THOMPSON, Henry Dallas. American educator, died at Santa Barbara, Cal., August 30. He was born at Metuchen, N. J., Aug. 24, 1864, graduated at Princeton in 1885, and became a fellow in mathematics. He studied at Johns Hopkins in 1886–87, and obtained a Ph.D. from Göttingen in 1892. He was a member of the Princeton faculty since 1888, and was made a professor in 1894. He was a member of the New Jersey Assembly, 1906–08. During travels in 1915–16 and in 1921–22 he studied governmental and educational methods in India, New Zealand, Australia, China, Japan, and the Philippine Islands. He was the author of the following: (With Henry Burchard Fine) *Translation of Euclid* (1890); *Elementary Solid Geometry and Mensuration* (1896); (with H. B. Fine) *Coordinate Geometry* (1907; new edit., 1909).

THOMPSON, William Gilman. American physician and educator, died at New York, October 27. He was born at New York, Dec. 25, 1856, and was graduated from Sheffield Scientific School, Yale, in 1877 and from the College of Physicians and Surgeons, Columbia University, in 1881. Later he studied in London and Berlin. From 1887 to 1898 he held chairs at the New York University Medical College, and from 1898 until 1916 he was professor of medicine at Cornell University Medical College, retiring with the title of professor emeritus. He was chairman of the Industrial Hygiene Division of the New York State Labor Department, being especially interested in obtaining compensation for industrial workers poisoned by chemical substances. He edited *The American System of Medicine* (1897), and frequently contributed articles to medical or other scientific journals, while he wrote, among other works: *A Text-Book of Practical Medicine* (1902); *Practical Dietetics* (1909); *Occupational Diseases* (1915).

THOMPSON, William Hale, Mayor of Chicago. See Illinois, under *Political and Other Events.*

THOMSEN, Vilhelm Ludvig Peter. Danish philologist, died May 13 at Copenhagen, Denmark. He was born in Copenhagen in 1842 and became professor of comparative philology at the university there in 1887. He traveled extensively in Asia and Europe, and his works, which deal with Lycian, Etruscan and runic inscriptions, include: *The Relations Between Ancient Russia and Scandinavia and the Origin of the Russian State* (1877, German translation, 1879), a series of lectures delivered at Oxford.

THURIN'GIA. A federated state of the German republic, created at the end of 1919; comprising the following states of the former German Empire: Eisenach, Gotha, Reuss, Saxe-Altenburg, Saxe-Meiningen and Saxe-Weimar, with Schwartzburg-Rudolstadt and Schwartzburg-Sondershausen. Area, 4536 square miles; population, according to the census of 1925, 1,609,300. Capital, Weimar, with a population in 1925, of 45,957. Other large towns with their populations at that date were, Gera, 81,402; Jena, 52,649; Gotha, 45,780; Eisenach, 43,385. The arable land is estimated at 44 per cent of the total area. The acreage and production of the principal crops in 1925 were: Wheat, 148,276 acres, 119,422 tons; rye, 182,009 acres, 131,619 tons; oats, 203,324 acres, 126,772 tons; potatoes, 160,518 acres, 887,118 tons. The government is under a diet, which acts through a state council. In the elections held in January, 1927, the following parties were returned: Conservative bloc, 19; Socialists, 18, Communists, 8; other parties, 6. The executive authority is intrusted to the president of the state council; president in 1927, Dr. Leutheusser.

TIBET, tĭ-bĕt′ or tib′et. A region extending eastwards from the Pamirs to the border of China; between the Himalaya and Kwenlun Mountains; nominally under the suzerainty of China. Area, estimated at 463,200 square miles; population, variously given, at 1,500,000 to 6,000,000, the probable figure being about 2,000,000. Capital, Lhasa, with a population of 15,000 to 20,000. Lamaiism is the prevailing religion. The chief pursuits are pastoral, and the animals raised include sheep, yak, buffaloes, pigs and camels. Some agriculture is carried on, the products including barley and other cereals, pulse, and vegetables. There are considerable industries of wool spinning, weaving and knitting. Of the minerals, gold, borax and salt are mined to some extent. Trade is chiefly with India and China.

TIMBER. See FORESTRY.

TIME, ESTIMATES OF. See GEOLOGY.

TIN. In 1927 there was an estimated increase in the output of tin over the year 1926. There was, however, a decline in price during the year, although the average was stated to be higher than in any normal year previous to 1926. As usual, the Federated Malay States were the chief producers, and the production for ten months of 1927 was stated at 42,557 long tons, or an increase of 4477 tons over 1926. Banka, with 12,909 long tons for the same period, showed a slight decrease, but there was an increase in the Dutch ores sent to the Straits Settlements, which amounted to 15,998 tons, and Siamese, Indian and South African ores amounted to 8782 long tons. Bolivia for the same ten months had a production of 27,112 long tons, or an increase of 2806 over 1926, while Nigeria had a production of 6467 tons, or an increase of 760 over the corresponding months of 1926.

The United States continued to acquire a constantly increasing percentage of the world's output. The world's production in 1925–1926, as computed by the U. S. Bureau of Mines, is given in the accompanying table.

WORLD'S PRODUCTION OF TIN BY COUNTRIES, IN LONG TONS [a]
[*Tin content of ore*]

Country	*1925*	*1926 (estimated)*
Australia	3,016	3,000
Belgian Congo [b]	1,226	1,500
Bolivia [c]	32,224	38,862
China [b]	8,884	6,538
England (Cornwall)	2,839	2,064
India (British)	1,616	1,296
Indo-China	582	([d])
Malay States:		
Federated [b]	45,926	45,948
Unfederated [b]	2,146	2,220 [c]
Netherlands East Indies	31,566	32,697
Nigeria	5,991	7,042
Portugal	559	([d])
Siam [e]	7,878	8,000 [c]
Union of South Africa	1,147	1,124
Other countries [f]	1,000	1,000
Total	146,100	147,300

[a] Compiled by L. M. Jones, of the U. S. Bureau of Mines.
[b] Exports.
[c] Estimated.
[d] Estimate included in total.
[e] Exports for year ended March 31 of year following that stated.
[f] Includes countries producing less than 500 tons.

During 1926 the only tin produced in the United States was mined in Alaska, and amounted to 7.14 long tons of recoverable tin in concentrates, valued at $10,400, as compared with 12.3 tons in 1925.

In 1927 the United States imported tin in the form of bars, blocks, pigs, etc., to the amount of 159,357,110 pounds valued at $100,865,205, as compared with 172,836,188 pounds valued at $104,793,396 in 1926. As in previous years, British Malaya supplied the chief amount, 101,011,226 pounds; followed by the United Kingdom, with 31,276,507; the Netherlands, with 17,371,939; Hongkong, with 4,415,495; Australia, with 1,499,600, Netherlands East Indies, with 587,171; and other countries with 3,195,172.

TIROL. See TYROL.

TITCHENER, EDWARD BRADFORD. American psychologist and educator, died suddenly at Ithaca, New York, August 3. He was born at Chichester, England, in 1867, and was educated at Malvern College, England, and Brasenose College, Oxford, where he received a B.A. in 1890. He studied with Wundt at Leipzig, where he took his Ph.D., and in 1892 went to the United States to take charge of the new psychological laboratory at Cornell University, as assistant professor of psychology. In 1895 he was made professor, and he remained at this post during his entire career, becoming research professor in 1910. Not only did he bring the Cornell laboratory of experimental psychology to a point of great efficiency, but he devoted himself single-heartedly to the advancement of psychological science along the lines where he conceived advancement to lie. He came with two main preoccupations, which he appeared to have borrowed from Wundt—the preoccupation to make psychology an experimental science, and the preoccupation for a scientific metaphysics on the basis of psychology. With these preoccupations, he brought scholarship and rigorous sincerity, and he stuck to his programme long after Wundt, his master, had gone over to such nonexperimental work as the study of the cultural psychology of peoples.

In his systematic outlook Titchener started with the postulate of psycho-physical parallelism. Instead of seeking to explain away consciousness in terms of physiology, he postulated a correspondence between the mental and the physical or physiological series. The physical series of events was to be studied by experimental apparatus, and the mental series was to be studied by controlled introspection. In this way, it was hoped, experimental psychology would escape the Scylla of the subjective faculty psychology and the Charybdis of materialistic mechanism. In practice, the programme of structural psychology—as the doctrine of Titchener came to be called—sinned in both directions; at least, in the minds of its critics. Whatever results were accomplished by the Titchenerian programme lay in the further exploration of physiological sensitivity.

On the mental side, the school never got beyond the analysis of consciousness into sensations. In the attempt to analyze the sensation further, the concept of attribute or dimension was developed, and thus a sensation was measured according to the attributes of extensity, duration, clearness, quality, and intensity. But this whole notion of attributes was abandoned in the end when it was realized that the observed attributes were not "existential" but were the result of subsequent judgments about antecedent experience. In short, as far as the basic programme of making psychology an exact experimental science was concerned, the Titchener school never proceeded beyond the obvious fact that we have sensations and that these sensations are presumed to come from the external world.

Professor Titchener made numerous original investigations in the fields of sensation, affective process, attention and action. He received honorary degrees from Harvard, Clark and Wisconsin. He wrote: *An Outline of Psychology*, 1896; *A Primer of Psychology*, 1898; *Experimental Psychology*, 1901–05; *Elementary Psychology of Feeling and Attention*, 1908; *Experimental Psychology of the Thought-Processes*, 1909; *Textbook of Psychology*, 1910; *A Beginner's Psychology*, 1915; *Systematic Psychology*, 1924.

TOBACCO. Production of tobacco in 1927 in the United States was estimated at 1,237,832,000 pounds, a reduction of about 60,000,000 pounds from 1926. Increase in the bright, flue-cured tobacco districts of the Eastern seaboard was more than offset by heavy reductions in the air-cured and fire-cured tobacco districts of the Mississippi Valley and Virginia, and less important reductions in some of the cigar districts. The average price per pound in 1927 showed an increase of 3.2 cents over 1926, representing an increase in the total farm value of this crop of approximately $30,000,000. The total value of the 1927 crop was estimated at $266,356,000. The chief producers were: North Carolina, 468,000,000 pounds; Kentucky, 242,820,000; Virginia, 129,940,000; South Carolina, 75,920,000; Tennessee, 71,435,000; Georgia, 59,088,000; Pennsylvania, 44,880,000; Wisconsin, 31,620,000; Connecticut, 28,886,000; Maryland, 26,176,000, and Ohio, 24,012,000.

The United States produces one-third of the world's output of tobacco, but accounts for 45 per cent of the total world export. The latter is limited to a few countries, such large producing areas as India, China and Japan consuming practically their entire crop locally and importing some tobacco in addition. There has been a tendency to substitute foreign tobaccos for the American product in a number of European countries, notably Italy and Poland, while Great Britain has been importing more tobacco from her colonies. These developments help to explain sharp reductions in the black tobacco belt of Kentucky and Tennessee. (See also U. S. Dept. of Agriculture, *Official Record*, Apr. 13, 1927, page 7.)

Tobacco is rapidly assuming an important place in Canada's export trade. The 1927 export of 6,330,972 pounds was 30 per cent greater than that of 1921. Great Britain absorbed 99 per cent of the 1927 export, valued at $2,669,300.

Receipts from tobacco taxes of various kinds in the United States during the fiscal year 1926, as reported by the Commissioner of Internal Revenue, again showed a large increase and were the greatest in the history of the United States Internal Revenue Service. These collections included taxes on tobacco, snuff, cigars and cigarettes of domestic or imported manufacture, and domestic and imported cigarette papers and tubes. The total receipts for 1927 were $376,170,205.04. No prior year's collections approached this figure, which represented an increase of $5,503,766.17 over the preceding year. This is the more surprising from the fact that the reduction in rates of taxes on cigars under the revenue act of 1926 accounted for a decrease of $14,774,661.58 in collections from taxes on large cigars and a decrease of $180,084.19 from taxes on small cigars, and, furthermore, that the repeal of tobacco special taxes accounted for a decrease of $1,132,155.97, and that the revenue from chewing and smoking tobacco declined $2,640,578.04. The increase in the taxes collected resulted from the unparalleled receipts on small cigarettes, amounting to $278,928,561.81, which was an increase of $24,103,753.62 compared with the preceding year. This tax on cigarettes represented 74.15 per cent of the total tobacco collections.

The collections in North Carolina were more than three times those in any other State, amounting to $185,941,504.24. For State tobacco taxes, see TAXATION.

TOBAGO. A West Indian island, included administratively in Trinidad (q.v.).

TODDITE. See MINERALOGY.

TOGO, tō′gō or TOGOLAND. A former German protectorate in West Africa; after the War, divided between Great Britain and France; situated between Dahomey and the Gold Coast. Total area, 33,700 square miles; total population estimated at 762,208, of whom 245 were Europeans. Hamitic tribes make up the population of the north, while in the south the chief stock is the Ewe. To France has been allotted about two-thirds of the total area; namely, 21,200 square miles, including all the coast. The British part bordering the Gold Coast has an area of 12,600 square miles, with a population, according to the census of 1921, of 188,265. The soil is generally fertile and the forests are extensive; the mineral resources are rich but undeveloped. Iron is reported to be especially abundant. Statistics for exports, imports, revenue, and expenditure are now included in the general totals of the Gold Coast. The governor of the Gold Coast is the administrator of the territory.

In French Togo, the natives engage in agriculture and some manufacturing. The chief agricultural products are corn, yams, plantains, peanuts, etc. The forest products are of some value, but the chief trade is in palm oil, palm kernels, cacao, copra, cotton, and rubber. The native industries include weaving, straw-plaiting, wood-cutting, pottery, etc. In certain districts the natives engage in iron smelting. In 1925 the imports were valued at 76,328,503 francs; exports, 61,576,782 francs. The budget for 1926 balanced at 23,887,200 francs. From Lome, the seat of the government, there are railway connections with Anecho, Palime and Atakpame, with a total length of 204 miles. In 1925, 333 vessels cleared from the two ports of Lome and Anecho.

TOLEDO, UNIVERSITY OF THE CITY OF. An institution of higher education at Toledo, Ohio, founded in 1872. The enrollment for the autumn of 1927 totaled 1633, including 825 day students and 808 late afternoon and evening students. There were 244 students registered for the summer session. The faculty had 74 members. The annual budget of the university amounted to $249,000, and the library contained about 21,000 volumes. Dr. Henry John Doermann was chosen president and entered on his duties Dec. 1, 1927.

TONGA or **FRIENDLY ISLANDS.** Three groups of islands, together with small, outlying islands, to the east of Fiji in the Pacific Ocean, between 15° and 23° 30′ S. latitude and 173° and 177° W. longitude; since May 19, 1900, a protectorate of Great Britain. Total area, approximately 385 square miles; population, according to the census of 1921, 23,759 Tongans; 370 other Pacific islanders; 571 Europeans; and 235 half-castes. The natives are Christians, about 16,000 belonging to the Free Church of Tonga. At the end of 1924 there were 105 public primary schools, with 4600 pupils enrolled. Tonga College had eight teachers and 161 students at the end of 1924. Native produce consists almost entirely of copra. Revenue in 1924–25, £74,345; expenditure £63,585. In 1925 the imports were £258,322 and the exports £280,386. The government is under the High Commissioner of the Western Pacific, who acts by the advice of the local ruler and native chiefs. Queen in 1927, Salote, who succeeded Apr. 12, 1918; high commissioner for the Western Pacific, Sir Cecil Hunter Rodwell.

TONGKING, tŏn'kēn. A French protectorate, constituting the northern chief division of the colony of French Indo-China, south of the Chinese provinces of Kwangsi and Yunnan. Area, 40,530 square miles; population in 1926, 7,369,745, of whom 9143 were Europeans, exclusive of military forces. The chief city is Hanoi, which is the capital of French Indo-China, with a population of 103,235 in 1926. The chief crop is rice, although there is also a large annual production of raw silk. The mineral resources include limestone quarries, calamine and tin mines, as well as rich anthracite coal beds. Among the principal imports are metal tools and machinery, yarns, and cotton. The chief exports are rice, corn and animal products. Imports in 1924, 492,003,265 francs; exports, 372,153,000 francs. The local budget for 1926 balanced at 16,950,000 piastres. In 1924, 1019 vessels of 1,338,213 tons entered and cleared from the port of Haiphong. The government is under a resident superior, who in turn is under the governor-general of French Indo-China.

TORNADO. See MISSOURI, under *Political and Other Events.*

TORNADO INSURANCE. See INSURANCE.

TORONTO, UNIVERSITY OF. An institution of higher education at Toronto, Canada, supported by the provincial government, and founded in 1827. The 1927 autumn enrollment was 5456, distributed as follows: arts, 2907; medicine, 755; applied science and engineering, 545; household science, 134; Ontario College of Education, 199; forestry, 60; music, 27; graduate students, 368; dentistry, 284; social service, 99; public health nursing, 98; university extension (occupational therapy), 40. In 1926–27 the faculty had 659 members. The total expenditure for the year 1926–27 for salaries and maintenance was $2,453,945. The library contained 220,349 volumes and 76,876 pamphlets. Among the gifts received during the year were subscriptions for the Banting Research Foundation, $157,700, and other smaller contributions which brought the total gifts received to $235,123. President, Sir Robert A. Falconer, K.C.M.G., D.D., LL.D.

TORPEDO BOAT and TORPEDO BOAT DESTROYER. See NAVAL PROGRESS.

TOWN PLANNING. See CITY PLANNING.

TRACHOMA. In 1925 Herbert Work, Secretary of Interior of the United States, requested the American Medical Association to appoint a committee of ophthalmologists from that organization to investigate the spread of trachoma among the Indians of Oklahoma and other Southwestern States. A partial report was made by Dr. W. C. Posey in the *Journal of the American Medical Association* for May 21. A trachoma hospital school was established at Fort Defiance, Ariz., and if it proved successful others doubtless would follow throughout the Indian region. The high incidence of trachoma may be imagined when it is borne in mind that 25 per cent of the Navajo and Pueblo tribes are affected, the population of the Navajos alone being over 35,000. Most of the adults present the disease in its final or cicatricial stage, and the problem must be restricted to the treatment and prevention of the disease in the school children, since the school attendance makes it possible to acquire wholesale control. Naturally, the attendance is compulsory, and the children attend large boarding schools throughout the area. After the children leave school anything like wholesale control is impossible.

TRACK ATHLETICS. See ATHLETICS, TRACK AND FIELD.

TRADE FAIRS. See EXPOSITIONS.

TRADE-UNIONS. PAN-AMERICAN LABOR CONGRESS. The fifth Pan-American Labor Congress met at Washington, July 18–23, there being present delegates representing organized labor from the following countries: Colombia, Cuba, the Dominican Republic, Guatemala, Mexico, Nicaragua, Panama, Peru, Porto Rico, Salvador, the United States, and Venezuela. The executive council's report recited the following achievements: The appointment of a joint Mexican and American labor commission to investigate the emigration of Mexican unskilled labor to the United States, and attempts to remedy working conditions in Cuba, Nicaragua, and Venezula. The Congress passed the following resolutions of a general economic nature: Condemnation of the exploitation of labor recruited in one country for work in another; approval of the creation of government labor departments in the Latin-American countries; plea for appointment of labor attachés to embassies; a call for the exchange of labor information through the Pan American Union; the appointment of a commission to study a minimum wage; and the urging upon foreign corporations to use domestic labor where they had obtained concessions, etc. Various other resolutions were passed with specific reference to particular countries. Those applying to the Dominican Republic indicated the backward conditions still existing.

The resolutions called for an eight-hour day for workers in government activities; abolition of payment by scrip paper in sugar factories; enactment of a workmen's compensation act; establishment of free public hospitals; enactment of more equitable land laws in order to free "the great mass of citizens from serfdom to large landowners." The following officers were reëlected: William Green, president; Luis N. Morones, vice president; Santiago Iglesias, secretary; Matthew Woll, treasurer.

INTERNATIONAL FEDERATION OF TRADE-UNIONS. When this body met again after the War, it represented a membership of 23,170,000 trade unionists; at its 1927 congress in Paris, August 1–4, there was a reported membership of 13,445,553, of which only 268,309 were drawn from countries outside of Europe (Palestine, Argentina, Canada, South Africa). The trade-unionists of Great Britian and Germany made up almost 9,000,000 of the total. At the Paris congress the following matters were transacted: It was decided to move headquarters from Amsterdam to some other country; there was to be only one general secretary instead of the former three. A. A. Purcell, the former president, was defeated for reëlection, despite the insistence of the British delegation, and in his stead was chosen another Englishman, George Hicks, president of the British Trades-Union Congress. These resolutions were adopted: A demand for the ratification of the eight-hour day convention, a call for a continuous peace propaganda on the part of trade-unionists, and a resolution pointing out the need for a universal language. The defeat of Purcell indicated that the so-called "Amsterdam International" was still hostile to Russia. It could not be said that the history of the congress of 1927 held out many hopes for its rejuvenation.

British Trades-Union Congress. The fifty-ninth annual meeting of the British Trades-Union Congress was held in Edinburgh, September 5–10. The delegates represented 170 organizations and 4,163,994 members, a decrease of 201,625 from 1926. The congress attacked bitterly the passage of the trades dispute and trade-union act, demanding for itself "the full right of combination by all workers and the application of the strike to be used as and when and in what manner may be found necessary." It also rejected industrial unionism as against the present method by crafts. Russia, as before, loomed large in the proceedings of the Congress. President Hicks expressed great resentment of Moscow's policy of calumniation of English trade-unionism. The congress decided that "no useful purpose will be served by continuing negotiations with the All-Russian Council as long as its attitude and policy are maintained." The card vote approving the resolution was 2,551,000 for and 620,000 against.

Cuba. On May 22 the Cuban Federation of Labor was organized. The organization announced as its purpose the improvement of economic and social conditions of workers, and will furnish unemployment, disability and sickness benefits.

Canada. There was reported at the end of 1926 a trade-union membership of 274,604. The international craft-unions totaled 179,267 of this number. In March the All-Canadian Congress of Labor was organized chiefly for the purpose of being "freed from the reactionary influence of American-controlled unions." It represented a membership strength of some 50,000 members. The One Big Union contributed 18,605 of these. The Trades and Labor Congress of Canada held its forty-third annual convention at Edmonton, August 22–26. The membership of the organization was in the neighborhood of 112,000. Over the year there was an increase in paid-up membership of 11,325. The following resolutions, among others, were adopted: For the creation of free government employment bureaus; the favoring of an amendment to the immigration law prohibiting the importation of industrial workers; extension of free education and free textbooks; a minimum wage for teachers in certain provinces; endorsement of the five-day, 40-hour week; reclassification of letter-carrier service and salary increases; various safety and health measures; extension of minimum wage legislation; the legalization of peaceful picketing; opposition to "the interference of all foreigners in the political, economic, and industrial life of China." The congress refused to protest against the breaking off of trade relations between Canada and Russia. Tom Moore, president, and P. M. Draper, secretary-treasurer, were reëlected.

Spain. In May the General Federation of Spanish Workers submitted its programme to the government. This demanded: Enforcement of workers' insurance legislation and the adoption of unemployment, maternity and sickness insurance; observance of the eight-hour day; adoption of measures dealing with the cost of living and unemployment; extension of workmen's compensation to agrarian workers; establishment of an agricultural bank; creation of joint organizations for fixing of minimum wages; introduction of legislation for trade-union control of industry.

China. A writer in the *Monthly Labor Review* spoke hopefully of the development of the trade-union movement in China. He found unionization moving apace in the south or Kwangtung Province, while in the north and the Yangtze Valley militaristic suppression had made for an uneven development. Governmental attitudes colored the situation. In the South there was official sympathy; the North, fearing Russian penetration, frowned on the movement.

English Trade Disputes and Trade-Union Act. On April 5 the English government introduced its long heralded bill for the purpose of controlling the wide powers to strike. After much opposition from Labor and Liberals, and with a number of amendments, the bill passed both houses July 29. The provisions of the bill as amended are: 1. A strike is illegal if it has any object other than the furtherance of a trade dispute within the trade where the strikers are engaged; a strike is illegal if it is calculated to coerce the government "by inflicting hardship upon the community"; illegal lockouts are defined similarly; penalties are provided and trade-unions are not exempt (thus repealing the trade disputes act of 1906). 2. No trade-union may discipline a member for refusal to take part in an illegal strike; this is made retroactive to include the general strike of May, 1926. 3. Picketing is forbidden, generally, as appears from the definitions employed. 4. Trade-unions may make political levies on their members only if specific permission has been granted in writing. 5. Civil servants are denied the right to join trade-union organizations which may include persons not in the public service; in short, they may not belong to the British Trade-Union Congress. 6. Local authorities may not make membership in trade-unions a condition for employment. 7. The Attorney General may enjoin trade-union funds if they are applied in contravention of the act. 8. A strike, for purposes of the act, is defined as "the cessation of work by a body of persons employed in any trade or industry, acting in combination, or a concerted refusal, or a refusal under a common understanding, of any number of persons who are, or have been, so employed, to continue to work or to accept employment." See Great Britain, *History;* Labor, American Federation of.

TRANSJORDA'NIA. A territory of Asia Minor inhabited by Arabs, of which the territorial and political status was still unsettled in 1927, although nominally under the mandate of Palestine; situated to the east of the Jordan and north of the Arab dominions of the Hedjaz and Nejd. The area is uncertain because of the unsettled boundaries; the population has been estimated at 240,000, of whom 220,000 are Arab

Moslems. About half the population are nomads, the rest living in villages. A large part of the surface is desert. In the arable regions the principal pursuits are agriculture and stock raising. The estimated revenue for 1926–27 was £E208,060 and the grant-in-aid from the British government £E86,796. In 1923 the British government recognized the local Arab rule on condition that it should conform to constitutional principles and receive the approval of the League of Nations. Up to 1927 this approval had not been obtained. The general responsibility for Transjordania rests with the High Commissioner for Palestine, who is represented in the country by an agent. The Emir in 1927 was Abdullah Ibu Hussein.

TRANSPORTATION. See Railways.

TRANSVAAL. See South Africa, Union of.

TRANSYLVANIA. A portion of the Hungarian crownlands until taken over by Rumania in the latter half of 1918; formally annexed to Rumania by royal decree, Jan. 1, 1919. Area, 22,312 square miles; population, at the census of 1919, 2,678,367.

TRAVEL. See Literature, English and American.

TRAVIS, Walter Jeremiah. American golf player, died in Denver, Colo., July 31. He was born in Maldon, Victoria, Australia, Jan. 10, 1862, and received his education in the public schools there. He went to America when a young man, but it was not until 1895 that he made his first appearance in a golf tournament at Van Cortlandt Park, New York, turning in a score of 110. By 1897 he had won many prizes. In 1900 he became amateur champion of the United States. Mr. Travis held the American amateur championship three times, the Metropolitan four times and countless other titles. He reached the high-water mark of his golfing career in 1904 at Sandwich, Kent, England, when he won the British amateur championship, being the first American to hold that honor.

TREATIES. See Arbitration, International.

TRIESTE, trē-ĕst. A former crownland of Austria; occupied by Italy after the War, and retained by Italy under the peace settlement; including the port of Trieste and surrounding regions. Area, 37 square miles; population, at the census of Dec. 1, 1921, 238,655; estimated Jan. 1, 1926, 242,059.

TRINIDAD. A West Indian island north of the mouth of the Orinoco River, constituting, with Tobago, a British colony. Area of Trinidad. 1862 square miles; of Tobago, 114; total population, according to the census of 1921, 365,913; estimated at the end of 1925, 385,091. Capital, Port of Spain, with a population in 1925 of 64,535. The white population is chiefly made up of French, British, Spanish, and Portuguese, while the majority of the natives are West Indians of African descent, East Indians in 1925 were estimated at 125,238. English is the prevailing language. In 1925 the movement of population was: Births, 12,701; deaths, 7888; marriages, 1696. In the same year there were 290 elementary schools, with an enrollment of 57,785 pupils and an average daily attendance of 36,110. About 541,682 acres were under cultivation in 1925. A celebrated feature is the asphalt lake, the revenue from which in 1925 was £75,375. The petroleum industry is of prime importance, the output in 1925 being 153,527,745 imperial gallons of crude oil. There are a number of refineries and other plants for the manufacture of oil fuel, kerosene, etc. The imports in 1925 were valued at £4,395,041; exports, £5,170,355; revenue, £1,662,874; expenditure, £1,580,749; public debt, £3,400,504. The total shipping which entered and cleared in 1925 was 4170 vessels of 4,565,155 tons. The colony of Trinidad is under a Governor who is aided by an executive council and a legislative council. Governor in 1927, Sir Horace Archer Byatt.

TRINITY COLLEGE. An institution for the higher education of men, at Hartford, Conn., founded by members of the Protestant Episcopal Church in 1823, as Washington College; the present name was assumed in 1825. For the autumn term of 1927 the enrollment was 271, distributed as follows: Graduate students, 9; seniors, 41; juniors, 56; sophomores, 61; freshmen, 91; non-matriculants, 13. There were 34 members on the faculty. The endowment fund of the college amounted to $2,920,052.82, and the income totaled $224,547.98, exclusive of $12,300.11 received as gifts during the year. There were approximately 100,000 volumes and 40,000 pamphlets in the library. President, Remsen B. Ogilby, Litt.D., LL.D.

TRINITY COLLEGE. An educational institution at Durham, N. C., now a part of Duke University (q.v.).

TRIPOLITA'NIA. An Italian territory on the north coast of Africa; until 1919 a part of Italian Libya. In that year, for administrative purposes, Libya was divided into Tripolitania and Cyrenaica (q.v.). Area, estimated at 900,000 square miles; population, according to the census of 1921, about 550,000 natives and 20,716 Europeans, of whom 18,093 were Italians. The land is rather barren, but supports some palm, lemon, olive, and fig trees. The sponge fishing industry along the coast is of great importance; in 1926 production totaled 109,450 pounds, valued at 5,446,000 lire. The imports in 1925 were 185,729,013 lire; exports, 38,153,270 lire; colonial revenue for 1926–27, 204,610,000 lire; civil expenditure, 93,787,000 lire; military expenditure, 190,823,000 lire. The chief means of transportation is along caravan routes to the interior. There are also about 140 miles of railway. Tripoli, with a population of approximately 60,000, is the capital. Governor in 1927, General Emilio de Bono.

TRIPP, Guy Eastman. American operator of utilities, industrialist and manufacturer, died at New York, June 14. He was born at Wells, Me., Apr. 22, 1865, and attended South Berwick Academy while working in a general store. At the age of 18 he became a clerk for the Eastern Railway at Salem, Mass., and he steadily advanced through various positions as clerk and auditor in railway and electrical companies, until in 1897 he became associated with Stone & Webster, construction engineers and operators of public utilities. In 1910 he was chairman of the Joint Committee on Reorganization of the Metropolitan Street Railway Company, New York, and his executive ability was so outstanding that he was selected in 1912 as Chairman of the Board of Directors of the Westinghouse Electric and Manufacturing Company, a position he held at the time of his death. In the World War he became connected with the Ordnance Department of the U. S. Army, and was engaged in purchasing war material for the government. Commissioned colonel Jan. 16, 1918, he was made chief of the Production Division of the Ordnance Department, and was promoted to brigadier general Aug. 23, 1918, being assigned to duty as special assistant to the Chief of Ordnance. He was awarded the Distinguished Service Medal after the Armistice for "exceptionally meritorious service." After his retirement he continued his coöperation with the War Department in furthering plans for national defense and industrial preparedness. In 1923–24 he made a world tour in the interests of his company, and in Japan effected arrangements between the Mitsubishi interests and the Westinghouse Company. He received the decoration of the Second Class Order of the Sacred Treasure, the highest honor which the Emperor may confer upon a private citizen. Bates College conferred the degree of LL.D. upon him in 1924.

TROTSKY, Downfall of. See Russia.

TROTTING. See Racing.

TRUCK FARMING. See Horticulture.

TRUST COMPANIES. See Banks and Banking.

TRUSTS. See Chemistry, Industrial; Investments, Trust.

TSCHAKSTE. Jan. See Chakste, Jan.

TUBERCULOSIS. According to Dr. Petroff, who was in charge of the Trudeau Foundation Research and Clinical Laboratory, the immunization of the young against tuberculosis is the most vital and hopeful task of the day. In the *Journal of the American Medical Association* for July 23, he wrote at length on the three possibilities of immunization—with living virulent, living non-virulent, and killed cultures. It must be understood at the start that absolute immunity is an impossibility, and in any case not essential. Mankind is infected chiefly by bacilli in very low numbers, and mass infection exists chiefly in theory. Hence, relative immunity is sufficient for all practical purposes. In the case of virulent cultures one act of immunization is not sufficient, for the process must be repeated at intervals and new bacilli are implanted in the organism. While the danger of conveying a disease is remote at the time, and admitting that inoculation of these cultures must strengthen and develop resistance on the part of the body, it is not known precisely what becomes of these organisms. They may perish or become harmless saprophytes, but they also may thrive and multiply and increase their virulence and find their way to individuals who are susceptible to the disease. It is, of course, now understood that the bacilli cannot live and thrive without a host. The chief objection to living non-virulent cultures is that they may become virulent by passage to others. The use of killed cultures is absolutely safe, practicable on a large scale, and secures a considerable degree of immunity.

Another important study from the Saranac Lake region related to the use of light rays in the treatment of tuberculosis. It was published by Dr. E. Mayer in the *Journal of the American Medical Association* for July 30. Unfortunately, the impression prevails to some extent that the actinic rays, whether solar or artificial, are a specific for tuberculosis, even of the hidden forms, and actually destroy the bacilli. The fact that consumptives recover their health at times under the desert sun should not blind the public to other factors which make for recovery, such as pure, dry air, sleeping out of doors, physical rest, etc. But the forms of tuberculosis most apt to profit by light treatment are the superficial or surgical. Few of the hidden forms profit by it, and the only form of chest tuberculosis enumerated by the author is encountered in children in the so-called bronchial gland infection. Even in the above favorable forms, the treatment must be administered by experts and over long periods to be effective. Much unwarranted optimism over the light treatment has led to corresponding depression and skepticism.

TUBERCULOSIS ERADICATION, Bovine. See Veterinary Medicine.

TUFTS COLLEGE. A non-sectarian coeducational institution at Medford, Mass., founded in 1852. It is comprised of the school of liberal arts, Jackson College (the department for women); the engineering school; the school of religion; the Crane Foundation; and the medical and dental schools. The registration for the autumn term of 1927 was 2103. For the year 1926–27 there were 409 members on the faculty. The productive funds of the college amounted to $7,454,095.37, and the income for the educational departments for the year to $808,186.84. The library contained 93,000 volumes. President, John Albert Cousens, LL.D.

TULANE UNIVERSITY OF LOUISIANA. An institution of higher education, located at New Orleans, La., founded in 1834. Although the professional schools are coeducational, there is a separate undergraduate department for women. The total enrollment for the autumn term of 1927 was 2868, excluding all duplications, and was distributed as follows: Arts and sciences, 549; engineering, 267; H. Sophie Newcomb College, 699; graduate, 97; law, 74; medicine, 426; graduate medicine, 38; dentistry (seniors only, for the school was being temporarily discontinued), 19; pharmacy, 40; commerce, 568; courses for teachers, 200; social work, 16. There were 1037 enrolled in the 1927 summer session. In the autumn there were 417 members on the faculty. The productive funds, for the fiscal year ending Aug. 31, 1926, amounted to $6,092,453.53. The library contained 112,000 volumes. President, Albert Bledsoe Dinwiddie, Ph.D., LL.D.

TU'NIS. A French protectorate in North Africa, known as the Regency of Tunis; situated on the Mediterranean coast east of Algeria, bounded on the south by the Sahara and Libyan desert. The area is estimated at 48,300 square miles. According to the census of 1926, the total European population was 173,281, composed of 71,020 civilian French, 89,216 Italians, 8396 Maltese, 517 Spaniards, 646 Greeks, and 3486 other foreigners. The total native population was 1,986,427, of whom 1,932,184 were Arabs and Bedouins, and 54,243 Jews. The capital is the City of Tunis, with a population in 1926 of 185,996; other towns are Sfax, 27,723, and Bizerta, 20,593. In 1926 there were 422 public schools, including 8 lycées and colleges, and 32 private schools, of which six were Jewish schools provided by the government. The total number of pupils in the schools was 61,436. There are, besides, numerous Mohammedan schools, some of which are assisted by the state.

Agriculture is the principal industry, and the chief crops are wheat, barley, and oats. The soil is well adapted to fruit culture, and in the south dates are especially abundant. Olive trees abound in many parts of the country. The area under wheat in 1925 was 1,643,812 acres, production, 320,000 tons; barley, 1,259,455 acres, 150,000 tons; oats, 101,790 acres, 40,000 tons. There were 16,060,037 olive trees, the produce of which is about 34,000 tons of oil yearly. In the same year 1,034,251 date trees produced 81,497,797 pounds of dates. The livestock consisted of 72,456 horses; 118,542 asses; 33,016 mules; 369,647 cattle; 1,328,687 sheep; 850,395 goats; 117,703 camels; and 19,707 pigs. Among the native industries are spinning and weaving, pottery making, saddle making, etc. The mineral resources include lead, zinc, and iron ore and especially phosphates.

A big increase in exports to various countries and a noteworthy gain in imports from the United States were the important features of the Tunisian foreign trade in 1926. Taking invisible items into consideration, it seemed certain that the trade balance in 1926 was favorable.

The revenue for 1926 was £12,125,829 and the expenditure £12,122,468. The main sources of revenue were from direct and indirect taxes and from the tobacco and other monopolies. The chief expenditures were for the finance, public works and education departments. In 1925, 9782 vessels entered the ports of Tunis. The railway mileage in the same year was 1586, of which 622 miles were broad gauge. The Bey of Tunis in 1927 was Sidi Mohamed, who succeeded July 10, 1922. The government, known as the Regency of Tunis, is under the French foreign office, which is represented by a Resident-General. The administration is a mixture of French and native institutions. Resident-General in 1927, Lucien Saint, appointed Nov. 24, 1920.

TUNNELS. During the year several important tunnels were either completed and placed in use or were virtually finished, while progress was being made on other and new projects.

Holland Tunnel. On Nov. 13, 1927, the Holland Tunnel between New York and Jersey City was put into operation and immediately functioned successfully. On the first day of operation 52,285 vehicles used the tunnel, while during the 24 hours of November 14, vehicles to the number of 17,725, of which 30 per cent were trucks, were accommodated. On November 3, a fire test, to determine the efficiency of the fire protection apparatus and the ventilating system, was made with a fire set in an old touring car with the gasoline tank punctured. Traffic was stopped, the emergency trucks were called out at the alarm, and the fire was under control in about two minutes. A second test brought out the emergency fire apparatus, and it was found that the smoke from the fire was carried away by the exhaust ports, so that by the time the fire was extinguished the smoke had practically disappeared from the tunnel. During this time the ventilating system was working at normal capacity. The toll rates for the use of the Holland Tunnel were based on those charged on the cross-river ferries, ranging from 50 cents for passenger automobiles with capacity up to seven passengers, to $2.00 for 10-ton to 12-ton trucks. The speed of vehicles in the tunnel was restricted to 30 miles per hour with the vehicles required to keep 75 feet apart, slow-moving vehicles keeping in one line.

Moffat Tunnel. Late in the year the Moffat Tunnel in Colorado, with a length of six miles, was completed, and it was expected that it would be formally opened early in 1928. This tunnel pierces the Continental Divide at an elevation of 9200 feet, passing through a shoulder of James Peak. On July 7, 1927, the main railway headings were holed through, leaving only 2700 feet of bench about 10 x 16 feet to be excavated before the tunnel would be ready for use. On December 10, the excavation of the main or railway tunnel was completed, while on the same day the last five-ton steel set of lining was placed. During the remainder of the year the concrete lining was prosecuted vigorously, and the track was laid with 110-pound rails. This tunnel was leased to the Denver & Salt Lake Ry. and was intended eventually as a part of a new railway route through Denver to Salt Lake City, Utah, and the Pacific Coast. In the semi-annual report of the Tunnel Commission the cost of the project up to July, 1927, was placed at $14,494,437, provided for by a sale of $18,000,000 of bonds. The total cost figure exceeded the estimated cost of $6,720,000 by approximately $7,750,000, due to unexpected soft and hazardous ground requiring extra heavy timber.

Cascade Tunnel. During the year considerable progress was made on the Cascade Tunnel, under construction by the Great Northern Railway Co. in the State of Washington. This tunnel is 7.77 miles in length, the longest railway tunnel in the Western hemisphere and the third longest in the world. It was started in December, 1925, in order to get a lower-grade line at Stevens Pass, which formerly had been crossed by a switch-back line, and later by the 2.63-mile Cascade Tunnel, which was completed in 1900. The new tunnel, which penetrates solid granite, is 16 feet in width and 22 feet in height and is lined with concrete. The construction from the west end was being undertaken from the west portal and from crosscuts every 1500 feet from a pioneer tunnel extending 5.37 miles to a shaft. The east section, 2.40 miles in length, was being driven by heading and enlargment east from this shaft and westerly from the east portal. The main tunnel was being enlarged from a 10 x 10-foot centre heading, while the pioneer tunnel heading was 8 x 9 feet. By the first of December 13,000 linear feet of side wall and arch had been placed. At this time there remained a distance of 5320 feet still to be driven between the two pioneer headings that were approaching each other from the opposite portals, and in the main tunnel 1777 feet remained to be enlarged.

Detroit-Windsor Tunnel. By a large majority the electors of the City of Detroit, Mich., approved the proposed international vehicular tunnel under the Detroit River between Detroit and Windsor, Ont., which had been sponsored by the Detroit-Windsor Subways, Inc. This action was necessary, as it involved an amendment to the city charter, giving the tunnel company the right to construct its tube under city property, while at the same time the tunnel company was to give the city a voice in the determination of tolls to be charged to users. It was provided that the city might purchase the tunnel any time after 20 years, and the tunnel was to pass to the city free of charge if it was not purchased at the end of 60 years. The proposed cross-section of the subway, which was similar to the Holland Tunnel between New York and New Jersey, was circular, with an outside diameter of 30 feet and a deck supporting a 24-foot roadway with a ceiling clearance of 13½ feet. The total length between portals was to be approximately 5300 feet, with ventilating shafts 3900 feet apart. The mid-river section was 2400 feet in length. Bids on the contract for construction were called for late in the year.

Oakland Estuary Tube. A subaqueous tunnel 4403 feet in length was under construction during the year, between Oakland and Alameda, Cal. This work was being done by the trench method, and involved the placing of 12 pre-cast segments 203 x 37 feet for a portion of the work. During the year, all of these segments had been successfully placed, and on December 15 it was reported that two of the 13 underwater joints had been poured and seven of the segments had been connected and made acceptable on the inside, six on the Alameda end and one on the Oakland side. As the trench was backfilled, the various segments were opened up, and after this had been done the road slab was completed and the ceilings, sidewalk and conduits were placed. At the end of the year the portal structures were being completed, and the ventilation equipment was being installed, so that the tube could be opened for service about May, 1928. See Rapid Transit, for tunnels in new subway construction.

TUNNEY, Gene, American Pugilist. See Boxing.

TUPPER, Sir Charles Hibbert. Canadian statesman, died in Vancouver, B. C., March 30. Born at Amherst, Nova Scotia, Aug. 3, 1855, the second son of the late Sir Charles Tupper, famous Canadian statesman, he received his education at McGill and Harvard Universities, gaining the degree of LL.B. from the latter in 1876. In 1878 he was admitted to the bar, and he practiced law at Halifax, N. S., and in British Columbia. He was first elected to the Dominion Parliament in 1882, and held office as Minister of Marine and Finance, 1888–1894, and Minister of Justice and Attorney-General, 1895. He obtained the passage of several acts providing for the safety of ships and seamen, and represented Great Britain in the Paris tribunal of arbitration of the Bering Sea question in 1893; in the same year he was honored with the rank of Knight Commander of the Order of Saint Michael and Saint George. He retired from political life in 1904.

TURBINES, HYDRAULIC. See Water Power.

TURBINES, Steam. See Steam Turbines.

TURKESTAN, tur′kĕ-stän′. An autonomous republic in Central Asia, forming a part of the Union of Soviet Socialist Republics; comprising the provinces of Samarkand, Ferghana, Syr-Darya and Semiryetchensk. Area 571,630 square miles; population, according to the census of 1923, 7,201,551, of which 6,130,400 were rural and 1,071,151 urban. Chief towns with their latest available populations: Tashkent (the capital), 271,650; Omsk, 129,442; Kokand, 113,700. The name "Turkestan" is also applied to a dependency of China lying north of Tibet and forming a part of Sin-Kiang or the New Dominion.

TURKEY. A republic since Oct. 29, 1923; formerly the Ottoman Empire; occupying a portion of the Balkan peninsula—Turkey in Europe—and a large part of Asia Minor with contiguous territory—Turkey in Asia; since the Treaty of Lausanne, July 24, 1923, comprising in Asia Minor the territory lying within the Caucasian frontier, the northern part of the old Turco-Persian frontier, the frontier between Turkey and Syria extending from Jazira-ibn-Omar on the Tigris to a point near Payas on the Gulf of Alexandretta, and the so-called "Brussels" line between Turkey and Mesopotamia (q.v.); in Europe, Constantinople and eastern Thrace, according to boundaries fixed in the treaty; and, in the Mediterranean Sea, Imbros, Tenedos and Rabbit Islands. Capital, Angora.

Area and Population. The area of the present republic of Turkey is estimated at approximately 494,538 square miles. The Ministry of Health placed the population at 13,357,000 at the end of 1924, but many competent observers declare this figure to be entirely too high, placing the total at about 10,000,000. Announcements of the census taken in October were made late in the fall, and placed the population at 13,641,810, a figure which was skeptically received in many quarters. In Turkish returns published early in 1924, the population of the principal cities was given as follows: Constantinople, 880,998; Smyrna, 98,846; Konia, 71,104; Brussa, 64,664; and Adana, 64,110. The population of Angora was given as 35,000.

Education. No statistical information on educational matters was available for the year. The schools are directly in charge of the Ministry of Education, and elementary education is compulsory. The policy of the republic has been to abolish religious schools of all kinds and replace them with government schools. Thus in 1924 the numerous Moslem schools were closed. The government schools comprise primary grades, secondary schools, training schools for teachers, and the University of Constantinople.

Production. Agricultural production during 1926 was in general below that of 1925, owing chiefly to adverse weather conditions. The tobacco crop, which constitutes the largest export item in value, was estimated to be 20 per cent less than for the previous year, producing 84,000,000 pounds as against 104,500,000 pounds. The quality was reported to be poorer. Estimates of the cereal crop indicated a decrease of 20 per cent. The total cotton crop was expected to be less than for the previous year; the Smyrna region reported an increase, but decreases were indicated in all the other districts. Olive oil production for 1926 was also reported to be less than in 1925, but a larger fruit crop was expected. Estimates for the 1926 crop of raisins gave 35,000 metric tons as against 25,000 in 1925; for figs, 28,000 metric tons as compared with 20,000 in 1925. The opium crop was stated to be equal to that of 1925; the wool and mohair clip showed an increase. The mineral resources are rich but undeveloped. Among the metals worked are chrome ores, silver, zinc, borax, manganese ore, antimony, copper ore, salt, iron, etc. Manufactures are in a primitive stage, and include woolen yarn and cotton spinning.

Commerce. Data for the first 10 months of 1926, the latest available, showed a value decrease in both imports and exports, £T188,123,503 ($98,407,400) and £T148,972,289 ($77,927,405), respectively, as compared with the corresponding period of 1925, the figures for that year being imports, £T196,922,896 ($107,303,285), and exports £T153,703,003 ($83,752,765). A smaller adverse trade balance was also indicated, amounting to £T39,151,000 ($20,480,000) for the 10-month period of 1926, as against £T43,200,000 ($23,550,500) in 1925.

The value of exports to the United States, as declared through the American consulates of Constantinople and Smyrna during 1926, showed an increase of more than 26 per cent over the 1925 total, being $17,360,525 in 1926 and $13,741,406 in 1925.

FINANCE. The proposed budget for the 1927–28 fiscal year, as approved by the Assembly in the Spring, provided for expenditures of £T194,454,619 and estimated receipts of £T194,580,544. This represents an increase of £T5,046,855 in appropriations and £T4,421,690 in anticipated revenue over the previous budget. The most important increase was for public works (£T11,443,000), principally for railroad construction. The appropriation for national defense showed a reduction of £T5,520,000, as compared with the previous year, and represented the largest item of expenditure, or about 30 per cent of the total. With a view to more efficient collection, a bill was introduced in the Assembly, providing for a flat rate on goods as they enter the country, thereby modifying the consumption tax now in effect.

State revenues for the fiscal year ended May 31, 1927, were estimated by the Ministry of Finance to have exceeded the budget figures of £T183,020,000. On the basis of these returns, a smaller deficit was anticipated for the fiscal year of 1926–27 than for 1925–26, when it was approximately £T8,433,000. During the year new sources of revenue were created by imposing taxes on importation and manufacture of moving picture films and phonograph records, and the establishment of a State monopoly of the sale of playing cards.

COMMUNICATIONS. Statistics covering the port of Smyrna, the principal export shipping point of the country, showed slightly less activity during 1926 than in the preceding year. In 1926 a total of 2227 vessels of an aggregate tonnage of 1,935,200 called at that port, as against 2554 vessels of 1,999,000 tons in 1925. The vessel movement through the straits at Constantinople, however, totaled 12,781,400 tons, exceeding that in 1925.

The length of the railways in Turkey is approximately 2200 miles. The Angora-Kaisaria (Cæsarea) Ry. was completed May 12. This railway was begun following the voting of the appropriation for the line in March, 1924. Its construction was largely, though not wholly, in the hands of Turkish engineers and workmen, backed by government capital, and it was this fact that aroused so much popular enthusiasm over the successful completion of the project. The length of the line is 380 kilometers, with nine bridges and 33 tunnels. The estimated cost of the line was between £T26,000,000 and £T30,000,000.

GOVERNMENT. As a result of the revision of the constitution in April, 1924, the Turkish State was declared to be a republic; the religion, Islam; the official language, Turkish; and the capital, Angora. The Assembly was to be elected every four years. While, according to Article 7, the Assembly exercises the executive power through the President elected by itself and through the council of ministers chosen by him, there is a proviso that the Assembly may at any time control the actions of the government and at any time dismiss it. The President was to be chosen from among the deputies constituting the National Assembly, and his term of office was to be identical with the life of each Assembly. He is *ex officio* president of the Assembly and also, in case of necessity, of the council of ministers. He may, however, take no part in the debates of the Assembly, nor has he absolute powers to veto legislation or to dissolve the Assembly. President in 1927, Mustafa Kemal Pasha. The cabinet was constituted as follows: President of the Council, Ismet Pasha; Interior, Jemil Bey; Finance, Abdul Halik Bey; Public Works, Behij Bey; Foreign Affairs, Tewfik Rushdi Bey; Justice, Mahmud Essad Bey; Public Instruction, Nejati Bey; Public Health, Dr. Refik Bey; Commerce, Rahmi Bey; Agriculture, Sabri Bey; Marine, Ihsan Bey; National Defense, Rejeb Bey.

HISTORY. The failure of the United States Senate to ratify the Treaty of Lausanne signed between the United States and Turkey, left the status of American citizens and the commercial relations between the two countries in a very awkward position. The matter was temporarily straightened out, however, by an agreement between Admiral Bristol, the American High Commissioner to Turkey, and Tewfik Rushdi Bey, the Turkish Minister of Foreign Affairs, signed on February 17 at Angora. The agreement was simply a recognition of the state of affairs existing and provided for the regular diplomatic and commercial relations according to the tenets of international law. President Coolidge appointed Joseph C. Grew, under secretary of state, to the position of ambassador to Turkey in May.

Early in September elections were held throughout Turkey for a new National Assembly. Needless to say, the deputies who were elected were all favorable to Mustafa Kemal, for the simple reason that he nominated them. About half of the members of the first Assembly were not returned to office, their places being taken by younger men steeped in the newer republican ideas. The president broke all records for speechmaking when he delivered a 400,000-word speech to the new Assembly on the glories of the republic from 1918 to 1923; the address consumed the better part of four days in delivery (36 hours and 30 minutes). As a result of the elections, a new cabinet under the leadership of the old premier, Ismet Pasha, was formed.

TURPIN, FRANÇOIS EUGÈNE. French inventor of high explosives, died at Pontoise, near Paris, January 24. He was born at Paris, in 1849, and after carrying on investigations in colors turned to the study of explosives, inventing melinite and other explosives. While carrying on negotiations with the British ordnance firm of Sir William Armstrong in 1889 for the English rights to melinite, he discovered that the secret of his invention had been stolen and sold abroad. He disclosed the facts of the matter in a book, and Captain Tripone, who had appropriated the information, was arrested and convicted. Turpin in turn was then charged with having disclosed matters relating to public defense, but was pardoned in 1893 and exonerated in 1901, receiving an appointment in the Ministry of War as an artillery expert.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. A non-sectarian, coeducational, normal and industrial school for the higher education of negroes, at Tuskegee, Ala., founded in 1881 by Booker T. Washington. The enrollment for the autumn of 1927 was 1700, of whom 870 were women. The summer session had a registration of 798 students. There were 261 members on the faculty, of whom 146 were men and 115 women. The endowment fund amounted to $6,681,838.84, and the income for the year to $487,929.88. There were 38,000 volumes in the library. President, Robert Russa Moton, LL.D.

TUTANKHAMEN, TOMB OF. See ARCHÆOLOGY.

TUTUILA. See SAMOA.

TYPHOID FEVER. During the year 1927 the daily press referred often to the great epidemic of this disease in the City of Montreal, and a board of officers of the United States Public Health Service, after a first-hand study, published a report on the matter; an abstract is found in the *Journal of the American Medical Association* for July 16, with an editorial notice in the July 30 issue. The outbreak, which dated from Mar. 4, 1927, was one of the most deplorable of modern times, for between that time and Dec. 31, 1927, no less than 5115 cases, with some 545 deaths, were reported. One peak of the epidemic was reached in the fourth week, which ended on March 31, 1927, with 658 cases, while the second peak, which had 727 cases, was for the eleventh week, ended May 19. The epidemic originated in an insanitary milk supply from a certain infected area of the Province of Quebec, and could doubtless have been minimized had pasteurization been carried out. The local government, in the opinion of many sanitarians, exhibited an almost mediæval indifference to the early cases, taking no steps to investigate the origin and mode of propagation and voting no service or equipment to the city health department to meet the emergency. There were presumably both convalescent and healthy carriers of the bacilli who were handling the city's food supply, yet no steps were taken to make a survey. The advice of the U. S. Public Health Department to Americans was to keep away from Montreal until notice was given of changed conditions.

From a Florence, Italy, letter to the *Journal of the American Medical Association*, March 26, it appeared that under the Mussolini government anti-typhoid vaccination was compulsory under the following conditions: (1) For all persons employed in the care of patients or in cooking departments, disinfection services, laundries and cleaning services of hospitals, sanatoria or other therapeutic institutions, public or private; (2) for the personnel of the public laundries, those engaged in transportation of the sick or in disinfection services; and, (3) for the personnel employed in the water department or in the collection and sale of water. In addition, the prefect of a province, at the request of the provincial, may make this vaccination obligatory: (1) for all the people in his jurisdiction in case of a threatened epidemic; (2) for the personnel of any of the public services in which the chance of contagion is present in an unusual degree and (3) for any other group of people in which prophylaxis of typhoid fever is deemed advisable. The execution of the programme was entrusted to the communes, and under certain conditions to private societies, and the physicians who perform the vaccinations must make reports to the health officers of the communes, the reports to comprise the make of vaccine, the method used, the condition of the vaccinated, etc.

The U. S. Public Health Service announced that the total cases of typhoid fever for 50 weeks in 1927, as reported by the health officers of 36 states, numbered 22,400, compared with 25,500 cases in 1926 and 30,700 cases in 1925. The year 1925 had a higher case and death rate for typhoid than the three years 1922, 1923, and 1924, but the 1925 rates were lower than any recorded before 1920. From 1900 to 1926 the typhoid death rate in the registration area of the United States dropped from 35.9 to 6.5 per 100,000.

TYPHUS FEVER. An outbreak of probable typhus in some of the southeastern States of the United States at about the beginning of the year seemed to clear up some of the mystery of the incidence of this disease. During and for some time before the World War, the extensive rôle taken by the body louse in the dissemination and virulence of typhus gave rise to the belief that it is essentially louse-borne, although it was also admitted that a mild type known as Brill's disease is not only not louse-borne but apparently not contagious at all. The new outbreak supported this conception of Brill's disease (editorial in the *Journal of the American Medical Association*, January 29). There had been no instance of direct communicability nor any evidence of louse infestation. The course had been mild. Nevertheless, the disease was typhus, both clinically and serologically. Both the mild and the severe types of the disease were seen in the same locality, but in the severe forms the disease had clearly been diffused from person to person and apparently by louse propagation. It was necessary, therefore, to conclude that typhus was essentially mild and noncommunicable until the louse appeared on the scene. But even the mild form must be transmissible by some indirect means, and this must be sought in insects other than the louse (ticks, fleas, mosquitoes, etc.) with the further possibility that some of the smaller animals, as rats and mice, serve as "reservoirs" of infection.

TYROL. tē-rōl′. A crownland of Austria before the collapse of the Austro-Hungarian Empire, situated in the Alps; after the War it was divided between Italy and the new Republic of Austria. The former received the southern portion and the latter the northern. Total area before the war, 10,302 square miles; population, 946,613. Area of the Austrian province, 4882 square miles; population, according to the census of 1923, 314,836.

UBANGI-SHARI. See FRENCH EQUATORIAL AFRICA.

UGANDA, o͞o-găn′dȧ, **PROTECTORATE.** A *protectorate of Great Britain in East Africa;* lying north of Tanganyika. For administrative purposes it is divided into five provinces: namely, Eastern Province, Rudolph Province, Northern Province, Western Province, and Buganda. Area, 98,776 square miles; population, estimated in December, 1925, 3,148,481, composed of 3,137,602 natives, 9176 Asiatics, and 1703 Europeans. About 780,000 of the natives belong to the civilized Baganda, a race converted to Christianity.

The chief product is cotton, which is grown almost entirely by the natives on an area estimated at 617,300 acres in 1925. The other products include cacao, oil seeds, coffee, and para rubber. The total exports for 1925 were £5,096,717, mainly cotton (£4,685,992). The import figures are not available because they are merged with those of the Kenya Colony (q.v.). The combined imports into Kenya and Uganda in 1926 amounted to £7,441,000 and the exports from Uganda were estimated at £3,597,000. The decrease in 1926 as compared with 1925 was almost entirely due to the decrease in cotton shipments and lower cotton prices. The revenue in 1925 was £1,479,284; expenditure, £1,108,396. With the exception of Rudolph Province, the protectorate is directly under the British government, represented by a governor and commander-in-chief, but the native rulers are supported in the management of their own subjects. Governor and commander-in-chief in 1927, Sir W. F. Gowers.

U'KRAINE. A region known officially as the Ukrainian Socialist Soviet Republic; including the autonomous Moldavian Socialist Soviet Republic (formed in September, 1924) and the following provinces of the former Russian Empire: Kharkoff, Poltava, Chernigov, Kiev, Volhynia, Ekaterinoslav, Odessa, Nikolaiev, Kremenchug, Donetz, Zhitomir, and Podolia. Area, 154,440 square miles; population, in 1926, 28,887,919. Capital, Kiev, with a population, in 1923, of 403,730. The great bulk of the population adheres to the Ukrainian Orthodox Church. In 1925 there were 15,555 elementary and secondary schools having 1,795,193 pupils and 44,622 teachers. The soil is fertile, and the chief products are wheat, rye, oats, beets, tobacco, corn, and potatoes. In 1925 there were 4,100,000 horses, 8,000,000 cattle, 9,300,000 sheep, and 3,600,000 pigs. In 1925–26 the budget balanced at 182,594,836 gold rubles. There are approximately 11,070 miles of railways in Ukraine, about two-thirds of which are state-owned; about 2500 miles were reported under construction. The government of Ukraine is modeled on that of Russia (q.v.). At the head of the administration is a council of people's commissars. Chairman of the council in 1927, M. Chubar.

UNDERWRITING, UNDERWRITERS. See INSURANCE.

UNDULANT FEVER. See MALTA (UNDULANT) FEVER.

UNEMPLOYMENT. In the United States there is no compulsory reporting, nor are there central governmental employment exchanges where unemployment facts would become readily known. A plan submitted during the year and published by the Russell Sage Foundation was the unified work of a group of statistical experts. The plan required: (1) The use of the Federal Bureau of Labor Statistics as a clearing house. (2) That each State collect its own statistics. (3) That Federal bureaus coming in contact with particular industries collect employment data thereon. (4) That other Federal agencies coöperating with business, e.g. the Federal Reserve Board, lend their aid. (5) That these two questions should be answered: total number on the pay roll, and total wages paid in one pay roll period. (6) That reports be submitted monthly. (7) That these industries be included: Manufacturing, mining, communication, building construction, wholesale trade, retail trade, logging and lumber, agriculture. (8) That the sample selected represent an equal percentage of the total number of wage earners in each industry and include in proper proportions plants of different sizes, and that the sample represent localities. (9) That States and localities be separately treated. (10) That the figures be published as index numbers to make them comparable with other economic data. (11) That specialized studies be made from time to time.

The table gives the general index of employment in manufacturing industries and the general index of the pay roll totals from 1923 to 1927.

GENERAL INDEXES OF EMPLOYMENT AND PAY-ROLL TOTALS IN MANUFACTURING INDUSTRIES, 1923 TO 1927

[*Monthly average, 1923 = 100*]

	Employment					*Pay-roll totals*				
Month	*1923*	*1924*	*1925*	*1926*	*1927*	*1923*	*1924*	*1925*	*1926*	*1927*
January	98.0	95.4	90.0	92.3	89.4	91.8	94.5	90.0	93.9	90.9
February	99.6	96.6	91.6	93.3	91.0	95.2	99.4	95.1	97.9	96.4
March	101.8	96.4	92.3	93.7	91.4	100.3	99.0	96.6	99.1	97.7
April	101.8	94.5	92.1	92.8	90.6	101.3	96.9	94.2	97.2	96.0
May	101.8	90.8	90.9	91.7	89.7	104.8	92.4	94.4	95.6	95.6
June	101.9	87.9	90.1	91.3	89.1	104.7	87.0	91.7	95.5	98.3
July	100.4	84.8	89.3	89.8	87.3	99.9	80.8	89.6	91.2	89.1
August	99.7	85.0	89.9	90.7	87.4	99.3	88.5	91.4	94.6	91.0
September	99.8	86.7	90.9	92.2	88.0	100.0	86.0	90.4	95.1	90.1
October	99.3	87.9	92.3	92.5	87.6	102.3	88.5	96.2	98.6	91.2
November	98.7	87.8	92.5	91.4	85.9	101.0	87.6	96.2	95.4	87.8
December	96.9	89.4	92.6	90.9	85.1	98.9	91.7	97.3	95.6	89.3
Average	100.0	90.3	91.2	91.9	88.5	100.0	90.6	93.6	95.8	92.4

LABOR'S ATTITUDE. Under the auspices of the trade-union movement there was held at Philadelphia, July 30–31, a conference on unemployment. Labor indicated that the problem of unemployment, while difficult and needing long planning, was not beyond solution. Speakers pointed out the expedients that had met with success. The International Ladies' Garment Workers' Union, e.g., because the working year was only 31 out of 52 weeks, had secured for the workers high enough wages to tide them over slack periods, reduction of hours of work to provide employment for a larger number of employees, penalizing overtime by demanding time and one-half pay, equal division of work, no home work. But there were outside conditions which could not be controlled and necessitated the establishment of unemployment funds.

Chicago Clothing Industry. The *Monthly Labor Review* published a résumé of the working of the unemployment insurance scheme in operation in the Chicago men's clothing industry since 1923. The plan covers 350 plants employing 25,000 workers. Contributions, made up of equal shares by employers and employees, and totaling 3 per cent of the weekly salary, amounted to $3,250,000 for May 1, 1923 to Oct. 31, 1926. Benefits paid during the period were $2,650,000. Benefits are paid for two and one-half weeks in either of the two seasons May to October and November to April. The waiting period is 44 hours. The benefit is 30 per cent of full-time wages, with a maximum of $15 a week. "The size of the fund is limited to an amount equal to the total maximum benefits payable during a period of two years. When it reaches that amount contributions cease on both sides until the fund is reduced to an amount less than the total maximum benefits payable during a period of one year."

Great Britain. There were announced, during the year, figures of the Unemployment Insurance Fund for the period 1920 to 1925. The fund was first established in 1911 and until 1920 grew slowly, receipts exceeding expenditures. With the post-war depression following 1920 the fund was amended to cover the entire working class, with the exception of domestic servants and agricultural workers. In 1921–22 receipts were £43,024,085 (of which workers and employers contributed £30,553,608 and the State £11,057,901) and expenditures were £58,452,711. In 1924–25, receipts were £50,179,350 and expenditures were £51,550,823. For the period of operation, Nov. 8, 1920, to July, 1925, receipts were £203,133,528 and expenditures £233,827,723. The period following the termination of the general strike of 1926 saw a deficit in the fund of over £21,000,000.

In February a commission appointed in November, 1925, known as the Blanesburgh Committee, submitted its report to the English government. Its findings were unanimous, employers and trade unionists concurring in them. The committee agreed that unemployment insurance was a necessary feature of the English code of social insurance. Its recommendations were: That there be an insurance fund to which employers, employees, and state contribute in equal proportions. The scheme should apply to the same persons then being covered. Rates of benefit and contributions should be revised downward. Benefits for people between 18 and 21 were to be almost halved. Benefits might be granted after a waiting period of six days, if: (1) Claimant had made 30 contributions in last two years; (2) that he was genuinely seeking work; (3) that he is free from disqualification, i.e., that he has not voluntarily quit or was involved in a trade dispute. Contributions for all three groups (State, employer, and employee) in case of men over 21 were to be 6d. weekly instead of 6, 8, and 7d. respectively. The new scheme could not be introduced until unemployment had fallen considerably. On Jan. 31, 1927, there were 1,375,000 unemployed insured workers or 12 per cent of the insured body "or nearly twice the average figure under which the proposed scheme would become sound."

In November, a new unemployment insurance measure was placed before Parliament, being based, in part, on the report referred to above. The bill retained the contributions of 8d. weekly for employer, 7d. for employee, and 6d. for the State. Benefits are reduced for men over 21 with no dependents to 17s. weekly, for adult dependents the rate is raised from 5s. to 7s., and for dependent children it remains at 2s. For young people between 18 and 21 contributions and benefits are lowered. There are two important alterations in the proposed law. A claimant is entitled to benefit if he has contributed 30 contributions in two years, and he is to get such benefits as long as he is honestly unemployed, the case to be reviewed quarterly. The other alteration calls upon the claimant to accept "suitable" work, in this case the definition being applied to work not in his own trade. Under the present law "suitable" was held to apply only to the claimant's trade or occupation.

The Ministry of Labor, in reporting the results of its survey of the employment situation in 1927, stated that "in spite of the acute depression in some important industries, the average number of persons actually in employment reached a higher level than in any previous year." It was established that in 1927 the average amount of unemployment among insured persons was lower than in any year since 1920. For 1927 the ratio of unemployment was 9.7 per cent as against 17.0 per cent in 1921. On Dec. 19, 1927, the unemployed numbered 1,194,305, a decrease of 237,535 compared with Dec. 20, 1926. One of the important contributing factors in the favorable employment situation was the small number of trade disputes. During 1927 the total number of days lost was 1,180,000, of which 700,000 days were due to strikes in the mining industry alone. This was the best showing since the years of the War.

Germany. In July the Reichstag passed an act by which the system of unemployment relief from public funds was replaced by a system of compulsory unemployment insurance, and which also took the public employment bureaus out of control of the states and put them under Reich supervision. The new law establishes a Federal Bureau for Employment and Unemployment Insurance. All persons liable to compulsory health insurance, to compulsory old-age and sickness insurance, as well as crews of vessels, are subject to insurance. Unemployment-insurance premiums are to be paid jointly with health-insurance fees. Premiums, met equally by employers' and employees' contributions, are to be set by the Bureau, and not to exceed 3 per cent of wages or salaries. Benefits are to be fixed according to wages received by claimants, plus family allowances. Wages were to be divided into 11 classes, and for each a standard wage was to be set. A waiting period of eight days is set. Benefits are payable after 26 weekly contributions have been made. Payments of benefits are limited to 26 weeks, after which the unemployed person is assigned to the "crisis" relief which is borne by the Reich and the States. Persons under 21 years and persons who are beneficiaries of "crisis" relief must accept any employment.

Italy. The National Social Insurance Organization of Italy reported that in April, 1927, there were 215,316 persons totally unemployed in the country. This figure was more than double that for April, 1926.

UNION COLLEGE. A non-sectarian college for men at Schenectady, N. Y.; founded in 1795.

The 1927 autumn enrollment of regular students totaled 811, distributed as follows: academic, 517; electrical engineering, 105; civil engineering, 135; chemical, 35; physical, 19. In addition, there were 85 graduate students, and 140 enrolled in extension courses. There were 75 members on the faculty. The library contained 71,000 volumes. The productive funds amounted to $3,500,000, and the income for the year was $600,000. During 1926–27 there was an increase of $160,000 in the funds of the College. A three-story building for the liberal arts departments, erected during the year, was dedicated on Nov. 5, 1927. President, Charles Alexander Richmond, D.D., Ph.D.

UNITARIAN CHURCH. A denomination believing in one God in one person, and consequently, in the purely human personality of Jesus. Unitarianism as a type of belief is ancient. The Unitarian Church in the United States developed as a modification of Congregationalism in New England, which led to the formation of the American Unitarian Association in 1825. This association is the executive organization of the Unitarian churches to-day. Each church is an independent congregation, and the denomination requires no adherence to a formal creed in its worshipers, and no profession of a particular doctrine in its ministers.

The one hundred and second annual meeting of the American Unitarian Association was held at Tremont Temple, Boston, Mass., May 24, 1927. On Jan. 1, 1927, the denomination had 422 churches, 386 of which were active. The Unitarian constituency was reported to number 131,240. There were 3265 Sunday school officers and teachers, and 21,098 pupils. Receipts for current church activities, as presented in the treasurer's statement for 1927, amounted to $739,244.20. General denominational work is carried on by departments, of which the chief are those of publication, religious education, church extension, social relations, new Americans, foreign relations, and recruiting the ministry. The church sponsors three theological seminaries: Harvard Divinity School; Meadville Theological School, Chicago, Ill.; and Pacific Unitarian School for the Ministry, Berkeley, Cal. Missionary work of the Department of New Americans was carried on among American citizens and residents of Icelandic, Finnish, and Norwegian origin, in particular. The Department of Foreign Relations kept in communication with groups holding similar beliefs in other parts of the world. Denominational publications are: *The Christian Register* (weekly); *The Beacon* (weekly); *The Pacific Unitarian* (monthly); and the *Unitarian Word and Work* (monthly). The Association has its headquarters at 25 Beacon Street, Boston, Mass. Its president in 1927 was Louis C. Cornish; secretary, Parker C. Marean; treasurer, Henry H. Fuller.

UNITAS FRATRUM. See MORAVIANS.

UNITED BRETHREN IN CHRIST. A denomination which resulted from the religious awakening of Philip William Otterbein, Martin Boehm, and their co-workers. The church had its beginning at a "great meeting" held about 1766 in the Isaac Long barn near Lancaster, Penn. The first conference was held in Baltimore, Md., in 1789, and the church was formally organized in Frederick County, Md., in 1800. Its theology is Arminian, and baptism is administered by any mode desired by the applicant, while its beliefs are those of the earlier evangelical denominations. The church is divided into 35 annual conferences, including those in China, Japan, the Philippines, Porto Rico, and West Africa. In 1927 there were 3135 organized churches; 1758 itinerant ministers; and 401,553 church members, or an increase of 3403 over 1926; 2878 Sunday schools, with an enrollment of 384,780, and 39,992 teachers and officers. The amount raised by the church for all purposes in 1927 was $6,943,820, representing a gain of $83,008 over 1926, and the value of the church property was $27,811,241. Conference missionary appropriations amounted to $107,120 and the General Home Missionary appropriations to $163,152. The church maintains the following educational institutions: Bonebrake Seminary, Dayton, Ohio; Otterbein College, Westerville, Ohio; Lebanon Valley College, Annville, Penn.; Indiana Central College, Indianapolis. Ind.; York College, York, Neb.; Kansas City University, Kansas City, Kan.; Philomath College, Philomath, Ore.; and Shenandoah College, Dayton, Va. Homes and orphanages maintained are: United Brethren Orphanage and Home, Quincy, Penn.; the Otterbein Home, Lebanon, Ohio; Colonel R. M. Baker Home, Puente, Cal. The printing establishment and the headquarters of the church are located at Dayton, Ohio. *The Religious Telescope* is the official paper of the church, and *The Watchword* the young people's paper.

UNITED CHURCH OF CANADA. See CANADA, UNITED CHURCH OF.

UNITED METHODIST CHURCH. See METHODISTS, WESLEYAN.

UNITED PRESBYTERIAN CHURCH. See PRESBYTERIAN CHURCH, UNITED.

UNITED STATES. AREA AND POPULATION. The area of the United States, exclusive of Alaska, is 3,026,789 square miles. The area of the non-contiguous lands, which include Alaska, Guam, and certain Pacific islands, Hawaii, the Panama Canal Zone, the Philippine Islands, Porto Rico, American Samoa, and the Virgin Islands (American), is 711,582 square miles, making a total area of 3,738,371 square miles. The estimated population of the United States on July 1, 1927, was 118,628,000. The population according to the census of 1920 was 106,418,175. This does not include the population of the territorial possessions.

AGRICULTURE. The principal crops of 1927 slightly exceeded the ten-year average in their combined yield to the acre and in their total value. The crop acreage of the year, 357,412,065 acres, about 0.1 per cent in excess of that of the year previous, indicated that agricultural industry was no longer on the decrease, as estimates of diminution of the farm population had earlier indicated. The total estimated farm value of all crops, $9,114,845,000, was $676,388,000 higher than that for the crops of 1926. The value increase was occasioned in great part by the prevalence of higher unit prices. These in some cases were so much higher as to bring about a higher total value for a crop of materially smaller quantity than in the preceding year. This was true in the case of cotton in particular. The 1927 crop, 12,780,000 bales in quantity, was about 5,200,000 bales less than that of 1926; but its estimated farm value, $1,253,599,000, exceeded that of the 1926 crop by more than $270,000,000. Tobacco, oats and commercial apples likewise each yielded a smaller crop of higher total value. Spring wheat, corn, barley, and rye crops were greater both in quantity and in value. Hay, attaining the phenomenally large total of 106,219,000 tons, and potatoes, of which the crop was 402,149,000 bushels, while both exceeding the quantity totals of the year previous, attained lower total farm values. While the absolute value production exceeded the ten-year average, value production per capita, owing to the estimated steady growth of the population of the country, fell in 1927 below the ten-year average by 4.8 per cent.

With regard to the regional distribution of the year's crops, a notable vagary occurred in the case of corn. Corn-growing States from Iowa eastward, Iowa included, made smaller corn crops than in 1926, while corn-growing States to the west and south of this group generally harvested larger totals, the Kansas crop being nearly trebled and that of Nebraska almost doubled. The chief spring wheat States, except Minnesota and Washington, gathered a much greater crop than in 1926, while the winter wheat crop fell off severely in the leading winter wheat States, except Nebraska. The cotton acreage was reduced in every one of 17 cotton States. But though it had been apprehended that the Mississippi River floods of the spring would lay waste a great cotton acreage, the reduction in the States chiefly afflicted only moderately exceeded that in the others, and all the chief cotton States attained increases in cotton crop total value over 1926.

For statistical and other further data on agriculture in the United States and its dependencies, see the article AGRICULTURE. Important crops are treated in the separate articles CORN, COTTON, WHEAT, etc. See also articles such as AGRICULTURE, U. S. DEPARTMENT OF; AGRICULTURAL EXPERIMENT STATIONS; AGRICULTURAL EXTENSION WORK; DAIRYING; FERTILIZERS; FOOD AND NUTRITION; HORTICULTURE; LIVESTOCK; SOILS; VETERINARY MEDICINE; FORESTRY; RECLAMATION. In the articles on individual States are presented the acreage, production and value of their more important crops in 1926 and 1927.

INDUSTRY AND COMMERCE. The course of industrial and commercial activity during the year was not marked by many extremes of prosperity or of the reverse, but activity was on the whole less than in 1926. The strike of the unionized bituminous coal miners in the central field, lasting from the beginning of April to the middle of October, exercised a moderately restraining influence on trade. Extensive damage done by the spring floods in the Mississippi River basin formed another adverse influence. The improvement of economic conditions in several of the chief countries of Europe was favorable to export business, but the tendency of certain of the European nations to raise tariff barriers against American goods worked unfavorably. The closing of the Ford automobile works for a period of several months for the purpose of remodeling the plant in order that it might produce a different type of automobile tended to diminish the buying power of the Detroit area temporarily. The abundance and ease of the ordinary forms of credit throughout the year worked uniformly in favor of increased business activity, but were not fully availed of, as the shifting of a portion of the total of the banks' resources from commercial loans to security loans and to investments in the course of the year indicated.

Mercantile failures in the United States, according to reports of R. G. Dun and Company, were greater in number and about 27 per cent greater in the aggregate of liabilities in 1927 than in 1926. The totals were 23,146 failures in 1927 and 21,773 in 1926; liabilities of failed concerns, $520,104,268 in 1927 and $409,242,258 in 1926. Bank clearings exceeded those of 1926, itself a record year, by about 6 per cent. The clearings for 1927 were $555,151,413,834; for 1926, $523,773,772,455. But as an indication of industrial and commercial activity, the 1927 clearings were regarded as deceptive, since they derived a considerable part of their total from transactions in securities and from banking transactions of a non-mercantile sort. This was indicated by the fact that almost the totality of the increase in clearings was scored in the New York Federal Reserve district, where the bulk of the transactions in securities took place, the clearing increase for the rest of the country being negligible. Clearings in the districts of Boston, Cleveland, Chicago and San Francisco were higher in 1927, while those reported at all the other Federal Reserve banks showed declines. Reports of the American Railway Association gave the total number of freight cars loaded in 1927 as lower than the total for 1926; 51,714,312 cars having been loaded with revenue freight in 1927, or 1,384,715 fewer than in 1926. The loadings during the first four months of 1927 ran ahead of the corresponding months of 1926, but thereafter month by month failed to attain the 1926 figures. The falling off was sharpest in the last quarter. The decreased loadings were taken as an indication of a diminution of the volume of business. A termination of the bituminous coal strike in the greater part of its area in October did not promote an increase in the volume of coal shipments, and the soft coal demand remained slack. The total amount of building done in the country in 1927, according to S. W. Straus and Company, fell short of the 1926 total by about $700,000,000. Some curtailment of employment and of wages was reported in the latter part of the year. During the first half of 1927 employment totals in the manufacturing industries as reported by the Department of Labor ran about two per cent below 1926, month by month, while pay roll totals were likewise slightly behind.

With regard to particular industries, the mining of bituminous coal was more disturbed than any other. The strike of union miners already mentioned continued from the beginning of April to the latter part of October, without notable incident. See COAL; STRIKES AND LOCKOUTS.

The anthracite industry was depressed for the greater part of 1927, owing to mild weather and low domestic demand for anthracite, as well as to the extending use of oil-burning house heating apparatus, encouraged by low prices prevailing for petroleum and its products. Prices in the petroleum industry were depressed by heavy production, due largely to the yield of the Seminole and other fields in Oklahoma, which continued heavy for the greater part of the year. In the iron and steel industry somewhat low prices prevailed, and production in most months ran below 1926. The *Iron Age's* composite price for finished steel, from 2.453 cents on January 1, moved down to 2.293 cents on October 25, and thereafter rose slightly to 2.314 cents at the year's close. The composite price of pig iron declined from a high of $19.71 a ton on January 4 to $17.54 a ton at the year's end. In the automobile industry concerns producing cars in competition with the Ford make continued to maintain profitable activity until the resumption of operations by the Ford works near the close of the year, when indications of an early strenuous competition made their appearance. In the cotton textile field, the low price of 1926 cotton promoted activity, early in the year, which was later curtailed, particularly in New England. See Business Review.

Foreign Trade. Exports from the United States rose moderately in the calendar year 1927, while imports declined materially in total value, as compared with their total for 1926, with the result that a much higher export balance was attained in 1927 than in 1926. The export value total was, for 1927, $4,864,804,773, as against $4,808,660,235 for 1926. The import value total was $4,184,378,182, for 1927; for 1926 it had been $4,430,888,366. The resulting excess of exports for the year 1927 was $680,426,591. The above totals included merchandise only, and were exclusive of movements of monetary metals.

In exports, the chief increase in the total for 1927, over that for 1926, was scored in shipments to two countries, Germany and Canada. Exports to Great Britain, France, Italy, Mexico, Cuba, and Brazil fell in value below the corresponding totals for 1926. The termination of the troubles caused by the British coal strike of 1926 and the material recovery in value of the French franc tended to diminish export activity in trade with those two countries. With regard to the composition of the export total, the crude foodstuff group showed a gain, as did also the group of semi-manufactured articles, while exportations of crude materials other than foodstuffs and those of manufactured foodstuffs fell off as a whole. Low prices prevailing for American cotton and petroleum during much of the year 1927 were factors in reducing the value total of the exports in the crude material group. The average of prices obtained for American goods exported declined.

The fall in the yearly aggregate value of imports was ascribed by the U. S. Department of Commerce in the main to a considerable decline in the average level of world prices outside the United States. In volume the imports approximately maintained the high level of 1926, but prices paid for goods imported averaged distinctly below those of 1926. A decline in the price of crude rubber was the chief single element in the average price decline of import merchandise, but prices for raw silk, wool and unmanufactured cotton were also notably lower. With regard to imports from the several countries, declines were widespread in the 1927 value totals. The imports from British Malaya fell in value by about $106,000,000, contributing over one-third of the total import value decline for all countries. Other sharp declines were those in values of imports from the Dutch East Indies and from Brazil. Of the larger industrial nations, the United Kingdom contributed a somewhat lower value total to the imports of the United States in 1927 than in 1926; while the imports from France, Germany, and Switzerland were greater in value.

Imports of gold into the United States were less in 1927; in the latter part of the year gold exports week by week for a time exceeded gold imports. The year's net importation of gold was about $6,000,000, as against $98,000,000 for 1926.

The values of exports from the United States to some of the principal nations in 1927, compared with 1926, were:

	1926	*1927*
Belgium	$99,299,398	$116,201,318
Denmark	50,577,039	58,673,511
France	264,003,674	228,746,051
Germany	364,161,630	481,580,787
Italy	157,401,862	131,649,544
Netherlands	135,795,044	148,268,221
Russia in Europe	48,490,061	64,086,677
Spain	68,205,700	73,772,333
Sweden	40,854,478	44,612,513
United Kingdom (Brit.)	972,606,296	840,066,096
Canada	738,567,970	835,878,090
Central America	75,051,623	76,352,857
Mexico	134,994,277	109,151,831
Cuba	160,487,680	155,382,755
Argentina	143,574,682	163,349,593
Brazil	95,449,419	88,746,757
Chile	49,043,193	37,888,715
Colombia	49,281,012	48,716,316
British India	50,012,864	63,296,981
China	110,205,014	83,510,912
Japan	260,754,079	257,581,581
Philippine Islands	68,648,351	69,520,855
Australia	168,694,795	159,125,666
New Zealand	41,574,541	32,517,214
British South Africa	51,079,969	52,485,658

Imports from some of the principal countries in 1927, as compared with 1926, were:

	1926	*1927*
Belgium	$77,793,008	$72,240,477
France	152,020,483	167,787,970
Germany	198,494,641	200,554,291
Italy	102,525,882	108,907,107
Netherlands	101,855,118	87,180,623
Russia in Europe	13,502,687	12,004,011
Spain	41,369,439	34,351,200
Sweden	44,017,955	47,891,182
Switzerland	42,083,003	45,864,356
United Kingdom	383,197,810	357,929,937
Canada	475,881,373	475,077,348
Central America	48,873,399	40,480,238
Mexico	109,306,142	137,815,044
Cuba	250,600,076	256,552,033
Argentina	88,058,085	96,961,236
Brazil	235,307,073	203,017,937
Chile	81,442,281	61,857,438
Colombia	90,241,676	87,803,351
British India	150,929,680	131,002,495
British Malaya	383,799,824	277,784,466
China	143,203,840	151,679,897
Dutch East Indies	119,616,454	91,388,340
Japan	400,692,948	402,105,184
Philippine Islands	103,796,844	115,988,729
Australia	45,738,024	38,626,656

Shipping. For statistics and other information in respect to the shipping of the United States during the year, see articles Shipping and Shipbuilding.

Manufactures. All the leading manufacturing industries are discussed under separate articles, such as Automobiles; Boots and Shoes; Iron and Steel; Paper; Rubber; Silk; Textile Manufacturing; Electrical Industries; etc. For engineering works see under Bridges; Canals; Ports and Harbors; Shipbuilding; etc. See also Chemistry, Industrial.

Mineral Production. The article Mineral Production and Resources gives the latest available official figures for mineral production in the United States. The more important minerals mined in the United States are treated in separate articles. There are also paragraphs on mineral production in the articles on the individual States.

EDUCATION. See the articles on EDUCATION IN THE UNITED STATES and UNIVERSITIES AND COLLEGES. Separate articles on the most important universities and colleges are also given under their respective titles. Sections on Education are included in the articles on the several States.

RELIGION. Statistics and other information relating to various denominations are given in separate articles on the various religious bodies.

FINANCE. For a discussion of Federal finances during 1927 see the article PUBLIC FINANCE.

ARMY AND NAVY. The army and navy are treated separately in the articles MILITARY PROGRESS and NAVAL PROGRESS. See also article on AËRONAUTICS.

VETERANS' BUREAU. By an act of Mar. 3, 1927, the Director of this Bureau was authorized to make loans to veterans on the security of their adjusted compensation certificates. The Bureau was thus made an agency for the accommodation of veterans desirous of obtaining the accrued value of their adjusted compensation, and unable to obtain this accommodation from banks and trust companies as the framers of the original bonus law had expected them to do. The Bureau disbursed, net, for all purposes in the fiscal year ending June 30, 1927, $405,348,448, or $30,756,727 less than in the fiscal year preceding. The decrease resulted chiefly from the cessation of the greater part of the activities for veterans' rehabilitation. The expenditure on such activities fell from $25,840,552 for the fiscal year 1926 to $2,206,556 for the fiscal year 1927. Military and naval insurance disbursements also fell, as payments declined to a normal level. The total of expenditure under the head of salaries and expenses was reduced by about $5,800,000. The failure of Congress to pass the second deficiency bill in March, 1927, carrying $35,000,000 for military and naval compensation for that year, rendered it necessary to anticipate in the expenditure of the appropriation of like purpose made for the year 1928. Appropriations for the Bureau for the fiscal year 1928, excluding the deficiency thus occasioned, attained $495,225,000; those for the fiscal year 1929 were estimated in the report of the Director of the Bureau at $485,560,000, exclusive of some $74,500,000 to be expended for government life insurance, from receipts. The Bureau continued to form much the largest item of ordinary appropriations in the Federal Government budget.

Hospitals. There were admitted to hospitals under the Bureau, in the fiscal year 1927, 71,967 patients, or 2526 more than in the fiscal year preceding. Of the total, 32,025 were admitted to Bureau hospitals for the first time.

Adjusted Compensation. The number of benefit claims adjudicated under the adjusted compensation act up to June 30, 1927, was 3,359,178; the claims were valued at $3,279,030,198. The chief part consisted of adjusted service certificates, to the number of 3,166,038, with a total value of $3,248,615,081. The remainder were cash payments, and quarterly payments to veterans' dependents, in minor amounts. The death claims paid to beneficiaries of holders of adjusted service certificates, up to the end of the fiscal year 1927, reached $34,224,720, paid on the deaths of 33,419 veterans. Loans contracted by veterans on their adjusted service certificates, from January 1 to June 30, 1927, aggregated 689,805, to the total principal sum of $64,433,625. Of these loans 464,458 were made by banks or trust companies and 225,337 by the Bureau itself.

The Bureau also paid active service death compensation awards to dependents of dead soldiers at the rate of $2,255,855 a month. It supervised guardianship of 22,160 incompetent beneficiaries of veterans and of 25,200 minor beneficiaries.

PENSIONS. The war pension rolls were increased in 1927 by the Indian War pension act of March 3, granting title to pension to all who had done 30 days' service in any Indian campaign between the beginning of 1817 and the close of 1898. Soldiers, widows (including the remarried), and minor children were made beneficiaries. Rates for soldiers ran from $20 to $50 a month, and were payable at the lower rate, without question of disability, at the age of 62. Widows were to have $30 a month with an additional $6 a month for each child under 16 years. An act of Feb. 11, 1927, increased the rates of payment for loss of hand, foot, arm or leg, the latter two up to $90 a month, and affected 1097 recipients.

The Bureau paid in pensions in the fiscal year ending June 30, 1927, $230,152,712, as against $207,844,348 in the fiscal year 1926. The number of Civil War soldier pensioners fell to 90,000 on June 30, 1927, from 106,790 a year previous. Civil War widow pensioners were on that date of 1927, 212,642; and in 1926, 226,650. Soldier pensioners of the War with Spain increased in number to 138,812 in 1927, from 122,182 in 1926. There remained on June 30, 1927, six soldier pensioners of the War with Mexico, 870 widows of Mexican War soldiers and 17 widows of soldiers of the War of 1812. The total number of all pensioners on the roll fell to 489,942 on June 30, 1927, from 501,723 a year earlier; it had been 1,004,196 at its highest point, on Jan. 30, 1905.

Civil Service Retirement. The Pension Bureau administered the distribution, separately from the military pensions, of civil service retirement and disability allowances. The fund for this purpose showed a balance June 30, 1927, of $68,336,761. Under an amendment of July 3, 1926, to the original retirement act, almost all the claims of annuitants were readjudicated, with general increase in the rates of payment. There were 14,119 annuitants on the roll on June 30, 1927. The disbursements for civil service annuities, refunds and allowances in the fiscal year 1927 amounted to $13,460,708.

PATENTS. In the course of 1926 there were granted 47,627 patents, for mechanical inventions, reissues included. Applications for patents numbered 86,028.

POST OFFICE. The deficit incurred in the annual operation of the postal service was somewhat diminished in the fiscal year 1927, as compared with the year preceding. Expenditures exceeded revenues by $16,434,168, as against $16,972,379 in the earlier year. The sum of $15,072,032, however, due to the civil service retirement fund for the fiscal year 1927, was treated as cash expenditure, for the first time, and raised the apparent deficit in like amount. With adjustment on account of payments not made in the year of their actual expenditure, the excess of the payments over the revenue in the fiscal year 1927 amounted to $28,914,716. Revenues of the year, including the money order fees and postals saving profits, were $683,121,989; for the fiscal year 1926 they were $659,819,801. The 1927 revenues showed an increase of $23,302,188 over those of 1926, or of 3.53 per cent. The continuation of the postal deficit came after the failure of Congress to enact changes in the postal rates, proposed in the last session of the 69th Congress.

Postage. Postage furnished $609,988,127, or 89 per cent, of the postal revenue. Of the postage, the sum of $523,601,030 was collected by the sale of stamps. Cost of postage, per capita of the population, was $5.09. Several new issues of stamps were put out in 1927. These included two air mail stamps of regular design, in the denominations of 15 and of 20 cents. A special 10-cent Lindbergh air-mail stamp was issued in connection with the exploit of the transatlantic flier. Three commemorative stamps were the Battle of White Plains, the Burgoyne Campaign and the Vermont Sesqui-Centennial stamps, all of 2 cent denomination.

Air Mail. The Postal Service advertised for bids from private parties to carry air mail over the transcontinental route, by sections. Private service under a resulting contract began between Chicago and San Francisco July 1, 1927. The contract carrier was the Boeing Air Service, Inc. Between New York and Chicago no satisfactory bid for the service was at first received. Later the National Air Transport, Inc., contracted to carry over this section from Sept. 1, 1927. The Government air mail service, maintained from 1918 on, was thereupon discontinued, the service between New York and cities southward, to Atlanta, being let on contract, as were also the Boston-New York, Philadelphia-Washington, Philadelphia-Norfolk, Seattle-Los Angeles, Cleveland-Pittsburgh, and Jackson-Macon routes. Contracts for several additional routes were likewise advertised. The air mail service in the fiscal year 1927 flew 2,583,006 miles, with one fatality.

Rural Mail Service. During the year, 718 rural routes were discontinued, chiefly on account of consolidations or of the establishment of city delivery service; and 133 new routes were established. Many existing routes were extended. As a result, the rural service increased, so as to supply some 24,475,000 inhabitants, while the number of routes declined slightly to 44,730 on June 30, 1927.

Mail Matter. In the fiscal year 1926, as reported in 1927, the postal service handled 25,483,528,621 pieces of mail matter, or a total weight of 6,563,957,862 pounds. Of the domestic total, 15,265,624,116 pieces, weighing 397,394,982 pounds, were first class mail; 4,609,911,143 pieces, weighing 1,504,324,794 pounds, were second class (except transient); third class totaled 3,962,462,729 pieces, 309,515,031 pounds; fourth class (parcel post) matter aggregated 770,360,696 pieces, 4,131,217,139 pounds. Franked matter amounted to 32,733,617 pieces, weighing in all 5,224,733 pounds. The outgoing foreign mail matter totaled 337,780,282 pieces, in weight 91,890,319 pounds. Collect-on-delivery parcels to the number of 49,806,180 were delivered, this total showing a fall of 1,296,333, or 2.54 per cent from that for the year previous.

In 1927 there were issued in the fiscal year 194,216,619 domestic money orders, to a total amount of $1,647,580,285, and 3,733,563 international money orders, in amount, $68,951,620. Totals for each kind materially exceeded those for the year preceding. Postal savings were handled in 1927 at 6,672 depositories; the balance to depositors' credit on June 30 was $147,359,254, an increase of $13,180,696 for the year. The number of depositors, which had fallen uninterruptedly since 1917, to 399,305 in 1926, rose in 1927 and was 411,394 on June 30.

DIPLOMATIC SERVICE. During the year a number of changes were made in the personnel of the American diplomatic service. Dwight W. Morrow of New York succeeded James R. Sheffield as Ambassador to Mexico, while Hugh S. Gibson of California, Minister to Switzerland, was appointed Ambassador to Belgium, succeeding William Phillips, who became envoy extraordinary and minister plenipotentiary to the Dominion of Canada. Robert Woods Bliss, who had been Minister to Sweden succeeded Peter Augustus Jay as Ambassador to Argentina, while Noble B. Judah of Illinois succeeded Enoch H. Crowder as Ambassador to Cuba. J. Butler Wright succeeded Theodore Brentano as Minister to Hungary, while Frederick A. Sterling was appointed Minister to the Irish Free State. William T. Francis was sent as Minister Resident and Consul General to Liberia. Harold Orville Mackenzie became Minister to Siam, succeeding William R. Russell. Leland Harrison was appointed Minister to Sweden in place of Robert Woods Bliss, while Hugh R. Wilson went to Switzerland as Minister in place of Hugh S. Gibson. The vacant post of Ambassador to Turkey was filled by the appointment of Joseph C. Grew.

The following lists give the names of the diplomatic representatives from the United States to foreign countries, and from foreign countries to the United States, in 1927:

EMBASSIES AND LEGATIONS OF THE UNITED STATES

Albania—Charles C. Hart, minister.
Argentina—Robert Woods Bliss, ambassador.
Austria—Albert Henry Washburn, minister.
Belgium—Hugh S. Gibson, ambassador. (Also minister to Luxemburg.)
Bolivia—Jesse S. Cottrell, minister.
Brazil—Edwin V. Morgan, ambassador.
Bulgaria—Charles S. Wilson, minister.
Canada—William Phillips, minister.
Chile—William Miller Collier, ambassador.
China—John Van A. MacMurray, minister.
Colombia—Samuel H. Piles, minister.
Costa Rica—Roy T. Davis, minister.
Cuba—Noble B. Judah, ambassador.
Czechoslovakia—Lewis Einstein, minister.
Denmark—H. Percival Dodge, minister.
Dominican Republic—Evan E. Young, minister.
Ecuador—Gerhard A. Bading, minister.
Egypt— —— ——, minister.
Estonia—Frederick W. B. Coleman, minister. (Also to Latvia and Lithuania.)
Finland—Alfred J. Pearson, minister.
France—Myron T. Herrick, ambassador.
Germany—Jacob Gould Schurman, ambassador.
Great Britain—Alanson B. Houghton, ambassador.
Greece—Robert P. Skinner, minister.
Guatemala—Arthur H. Geissler, minister.
Haiti— —— ——, minister.
Honduras—George T. Summerlin, minister.
Hungary—J. Butler Wright, minister.
Irish Free State—Frederick A. Sterling, minister.
Italy—Henry P. Fletcher, ambassador.
Japan—Charles MacVeagh, ambassador.

Underwood & Underwood

DWIGHT W. MORROW

American Ambassador to Mexico

Underwood & Underwood

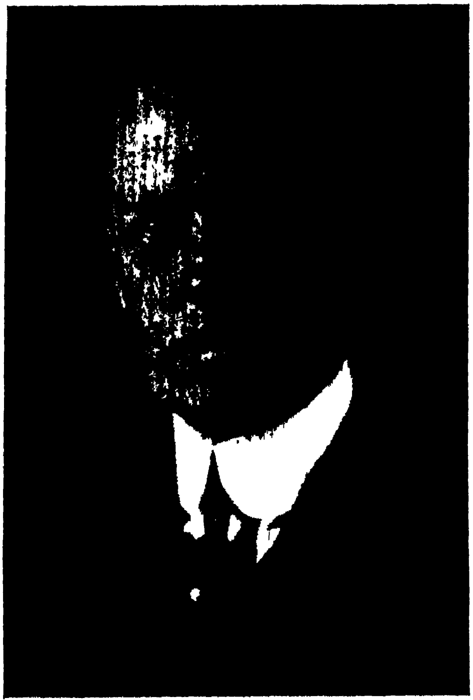
AHMED MOUHTAR BEY

Ambassador of the Turkish Republic to the United States

Underwood & Underwood

VINCENT MASSEY

Canadian Minister to the United States



Underwood & Underwood

WILLIAM PHILLIPS

American Minister to Canada

FOUR DIPLOMATS OF 1927

Latvia—Frederick W. B. Coleman, minister. (Also to Estonia and Lithuania.)
Liberia—William T. Francis, minister resident and consul-general.
Lithuania—Frederick W. B. Coleman, minister. (Also to Estonia and Latvia)
Luxemburg—Hugh S. Gibson, minister. (Also ambassador to Belgium)
Mexico—Dwight W. Morrow, ambassador
Morocco—Maxwell Blake, diplomatic agent.
The Netherlands—Richard M. Tobin, minister.
Nicaragua—Charles C. Eberhardt, minister.
Norway—Laurits S. Swenson, minister
Panama—John Glover South, minister.
Paraguay—George L. Kreeck, minister.
Persia—Hoffman Philip, minister.
Peru—Miles Poindexter, ambassador.
Poland—John B. Stetson, Jr , minister.
Portugal—Fred Morris Dearing, minister.
Rumania—William S Culbertson, minister.
Salvador—Jefferson Caffery, minister
Serbs, Croats, and Slovenes, Kingdom of—John Dyneley Prince, minister.
Siam—Harry Orville Mackenzie, minister.
Spain—Ogden H. Hammond, ambassador.
Sweden—Leland Harrison, minister
Switzerland—Hugh R Wilson, minister.
Turkey—Joseph C. Grew, ambassador.
Uruguay—U Grant-Smith, minister.
Venezuela—Willis C. Cook, minister.

EMBASSIES AND LEGATIONS TO THE UNITED STATES

Albania—Faïk Konitza, minister.
Argentina—Honorio Pueyrredon, ambassador.
Austria—Edgar L. G Prochnik, minister.
Belgium—Baron de Cartier de Marchienne, ambassador.
Bolivia—Dr. Don Ricardo Jaimes Freyre, minister.
Brazil—S. Gurgél do Amaral, ambassador.
Bulgaria—Simeon Radeff, minister.
Canada—Vincent Massey, minister.
Chile—Don Carlos G Dávila, ambassador.
China—Sao-Ke Alfred Sze, minister.
Colombia—Dr. Enrique Olaya, minister.
Costa Rica—Don J. Rafael Oreamuno, minister.
Cuba—Dr. Orestes Ferrara, ambassador
Czechoslovakia—Zdeněk Fierlinger, minister.
Denmark—Constantin Brun, minister.
Dominican Republic—Angel Morales, minister.
Ecuador—Don Juan Barberis, first secretary and chargé d'affaires ad interim.
Egypt—Mahmoud Samy Pasha, minister.
Estonia—Antonius Piip, minister.
Finland—Axel Leonard Aström, minister.
France—Paul Claudel, ambassador.
Germany—Baron Ago von Maltzan, ambassador (died September 23).
Great Britain—Sir Esme Howard, ambassador.
Greece—Charalambos Simopoulos, minister.
Guatemala—Don Luis Ibarra Rivera, first secretary.
Haiti—Hannibal Price, minister.
Honduras—Luis Bográn, minister.
Hungary—Count László Széchényi, minister.
Irish Free State—Timothy A. Smiddy, minister.
Italy—Nobile Giacomo de Martino, ambassador.
Japan—Tsuneo Matsudaira, ambassador.
Latvia—Arthur B Lule, consul general in New York, in charge of legation.
Lithuania—Kazys Bizauskas, minister.
Luxemburg—Baron Raymond de Waha, chargé d'affaires.
Mexico—Don Manuel C. Téllez, ambassador.
Netherlands—J. H. van Royen, minister.
Nicaragua—Dr. Don Alejandro César, minister.
Norway—Halvord H. Bachke, minister.
Panama—Dr. Don Ricardo J Alfaro, minister.
Paraguay—Dr. Juan V. Ramírez, secretary of legation and chargé d'affaires.
Persia—Mirza Davoud Khan Meftah, minister.
Peru—Dr. Hernán Velarde, ambassador.
Poland—Jan Ciechanowski, minister.
Portugal—Viscount d'Alte, minister.
Rumania—George Cretziano, minister.
Russia—Serge Ughet, financial attaché.
Salvador—Dr. Don Francisco A. Lima, minister.
Serbs, Croats, and Slovenes—Voislav Antoniévitch, minister.
Siam—Lieutenant-General Phya Vijitavongs, minister.
Spain—Don Alejandro Padilla y Bell, ambassador.
Sweden—W. Boström, minister.
Switzerland—Marc Peter, minister.
Turkey—Ahmed Mouhtar Bey, ambassador.
Uruguay—Dr. Jacobo Varela, minister.
Venezuela—Dr. Don Carlos F. Grisanti, minister.

ADMINISTRATION

THE PRESIDENT. The first important declaration of President Coolidge in 1927 was a special message to Congress on the relations with Nicaragua, delivered January 10. The propriety of American intervention in Nicaragua was maintained on the basis of treaty provisions, moral obligation, and the specific duty to protect American and foreign lives and property in Nicaragua. The treaty of peace and amity between the five Central American governments drawn up at Washington under United States auspices (though not signed by the United States) was cited as forbidding the recognition of any government seizing power by a political coup in any one of the five countries. It was advanced that Dr. Sacasa, Liberal claimant to the Presidency in Nicaragua, had been outside that country subsequent to November, 1925, and had thus, though vice president, been constitutionally disqualified from succession to the presidency. The rights of the United States under a treaty of August 5, 1914, to the necessary property for the construction of an interoceanic canal were represented as requiring protection, as were the lives and possessions of nationals of the United States and other countries in Nicaragua. It was stated that boats carrying munitions to the Nicaraguan revolutionaries had been fitted out in Mexican ports. See NICARAGUA.

Congress early in the year gave indications of insubmissiveness to the desires of the President. The Senate, January 24, refused to ratify his nomination of Cyrus E. Woods of Pennsylvania to the Interstate Commerce Commission. The passage of the McNary-Haugen bill by both houses of Congress was against the known views of the President, and his veto of the measure followed not unexpectedly. The veto message, delivered February 25, was a paper of unusual length—some 11,000 words—presenting an extended study of the writer's objections to the bill, on the scores of unconstitutionality, of discrimination, and of economic unsoundness.

The President temporarily gave up, in March, his residence at the White House, where extensive repairs were made during his absence. He removed to the Patterson mansion on Dupont Circle, returning to the White House only after his summer sojourn in the Black Hills. By an executive order of April 2, the President revoked the order of May 31, 1921, which had placed the Naval Petroleum Reserves Nos. 1 and 2, in California, and No. 3, in Wyoming, under the control of the Secretary of the Interior; the new order returned these areas to the control of the Navy Department. On April 6, he vetoed a measure of the Philippine Legislature calling for a plebiscite of the people of the Islands on the question of independence.

On June 13 the President, with Mrs. Coolidge, departed for a summer sojourn at the Custer State Park, near Rapid City, South Dakota. During the South Dakota stay the question of his candidacy for reëlection in 1928, which had become a matter of general speculation, grew increasingly acute. After maintaining silence on the subject, he finally, on August 2, declared his intention not to seek reëlection, in the brief typewritten statement: "I do not choose to run for President in 1928." This utterance was received with dismay by many Republican leaders, who had counted on the Coolidge candidacy. Senator Simeon D. Fess of Ohio, who had previously declared for the reëlection of Mr. Coolidge, engaged thereafter in an active agitation of the proposal that the Republican Party should "draft" the President for another term, that is, require that he be its candidate, even against his express will. Mr. Coolidge made no reply to these efforts at the time, and notably refrained from expressing any opinion as to the desirability of the election of a President for a third term.

In his annual message to Congress (see *Seventieth Congress, First Session*) President Coolidge emphasized the limits of practicable and wise tax reduction, which had become the foremost legislative issue. He repeated former warnings against too great a Federal control of industry, agriculture or trade. The Shipping Board was rebuked for "too often yielding" to pressure to protect private interests, and public operation of merchant vessels was characterized as not a success. The difficulty of surplus crops, according to the message, was to be met by coöperative selling, but not by government price fixing; and with regard to Mississippi flood relief, the government was not to act as the insurer of citizens against the hazards of the elements, though it could properly strengthen the Mississippi River dikes, the States benefited paying a portion of the cost.

On December 6, the President, addressing the Republican National Committee, made his first public reference to his August declaration against another term of office. He said in part: "My statement stands. No one should be led to suppose that I have modified it. My decision will be respected. After I had been eliminated, the party began, and should vigorously continue, the serious task of selecting another candidate."

FOREIGN RELATIONS

The administration of the United States in its foreign relations in 1927 was engaged in intervention in the civil war in Nicaragua, where it followed the policy of suppressing a revolutionary movement of Liberals with the use of naval forces and marines; it brought about a naval conference with Japan and Great Britain at Geneva, for the purpose of restricting naval armaments of types not dealt with by the Washington Conference of 1922, but failed to effect an agreement; late in the year, it engaged in negotiations with the French government to avert the application of a new French tariff unfavorable to certain American exports.

Naval Limitation Conference. President Coolidge issued an invitation February 10, to Great Britain, France, Italy and Japan to join the United States in a conference to be held to extend the limitation of naval armaments. France and Italy declined to take part in the conference, the French government advancing the reason that it preferred to avail itself of other existing agencies of armament limitation. Great Britain and Japan accepted. The conference of representatives of these two powers and of the United States met at Geneva on June 20. The chief British participants were Viscount Cecil and W. C. Bridgeman, First Lord of the Admiralty; the chief Japanese delegate was Viscount Saito; and the Americans were Hugh S. Gibson and Rear Admiral Hilary P. Jones.

The American and British delegations failed to agree on the maximum limit to be set on the tonnage of 10,000-ton cruisers of each of their nations. The Americans proposed 300,000 tons, and the British 600,000 tons as the maximum for all auxiliary fighting craft. Various compromise proposals were discussed. The British offered in July to limit all cruisers, destroyers and submarines to a total of 590,000 tons for Great Britain and the United States and 385,000 for Japan. They wished to retain the liberty to carry as much of this total in small 6000-ton cruisers, mounting 6-inch guns, as might seem desirable.

The American delegation, however, held to the position that the United States needed a larger tonnage of the 10,000-ton cruisers, and had no use for a great total of the smaller-type cruisers, their radius being less, and American naval bases too far apart. The conference adjourned without agreement, August 4. President Coolidge spoke reassuringly on August 9, in a newspaper interview, to the effect that the United States would not make a radical change in its naval building policy; but a great scheme of naval building was placed before Congress by the Secretary of the Navy in December.

The United States was represented at a Preparatory Disarmament Conference of representatives of divers nations, held under the auspices of the League of Nations at Geneva in December. Hugh S. Gibson and Rear Admiral Hilary P. Jones, American delegates, set forth the position of their country, remote from problems requiring special security compacts, as moving it not to coöperate in the labors of a special security committee to which the conference submitted certain problems.

French Debt. The French government, after undertaking to pay £6,000,000 a year to the British government, offered in a letter of March 1, from Premier Poincaré to Secretary Mellon, to pay provisionally the charges on its debt to the United States Treasury at the immediate rate of $10,000,000 a year, the charge set for the year 1927 in the unratified Berenger agreement; this payment to be in addition to $20,000,000 a year of charges on the debt for surplus war material that France had acquired. Secretary Mellon replied accepting the offer. Payment as agreed was made June 15.

Further Debt Funding. The World War Foreign Debt Commission that had been created by Congress in 1922 to negotiate debt-funding agreements with foreign nations went out of existence February 9, 1927. Subsequently, on December 5, Secretary Mellon and Secretary of State Kellogg negotiated with representatives of the government of Greece a debt-funding agreement covering the Greek war debt to the United States. The compact provided for gradual extinction of a sum of $19,659,836 by annual payments over a period of 62 years; it provided for the further advance of $12,167,000 as a compromise settlement of the undertaking of the United States, made in 1918, to lend the Greek government up to 250,000,000 francs.

Debt Controversies. Members of the faculty of Princeton University indorsed March 10 the earlier declaration of faculty members of Columbia University for revision of the totals payable to the Treasury by foreign governments. Secretary Mellon replied March 16, controverting the Princeton declarations. Certain of his statements were in turn challenged by the British government, early in May. A British note on the subject was delivered to the State Department, denying among other things Mr. Mellon's statement that the principal debtor governments "were already receiving from Germany more than enough to pay their debts to the United States." Secretary Mellon replied to this that his reckoning, including "such items as receipts on account of the army of occupation," was substantially true.

French Permanent Peace Proposal. In accordance with an idea previously outlined by the French Foreign Minister, Briand, in an address, the French government expressed to Ambassador Herrick early in June its desire to discuss with the United States government the negotiation of a treaty for permanent elimination of the possibility of war between the two nations. The project was again stressed August 1, by Premier Poincaré, speaking before the American Club at Paris. Diplomatic discussion of the proposed treaty was begun in December.

Tariff Negotiations with France. The State Department addressed, in September and October, a series of notes to the French government, relative to the tariff increase put in force in France on September 6. This increase placed maximum rates on certain products of American origin, while granting much lower rates to like products originating in Germany and certain other countries. The American notes asserted the claim of the United States to treatment as favorable as that accorded to any other country; the French position was that special accords in which another country granted tariff favors formed a type of reciprocity falling outside the general most-favored-nation treatment. The Treasury Department early in October ordered the application of certain countervailing increases of duties on imports from France.

The French government proposed the negotiation of a new trade treaty, and undertook to remove its tariff increases on American goods provisionally, on assurance that the United States would enter negotiations likely to permit the sale of a specific list of French products in the United States. The United States replied that its tariff act "did not envisage the conclusion of a treaty of reciprocity." A French note of November 2 requested that America remove the countervailing duties lately applied, that it desist from conducting investigations in France of French production costs as applicable in rate making under the flexible tariff clause of the Fordney-McCumber act, that it remove so far as possible the sanitary restrictions on agricultural and pharmaceutical products from France, that it agree to open at once a Tariff Commission inquiry as to the possibility of reducing tariffs on French silks, textiles, perfumes, etc., and that the Commission report be preliminary to treaty negotiations.

An American note of November 8 was sufficiently satisfactory on these points to cause the President of the French Republic to sign a decree on the 12th, substantially restoring for the time being the old duties on American goods. Objection raised by Washington to the flotation of a loan in the United States to refund an existing French obligation held by American private investors was accordingly withdrawn.

Relations with China. The proposal to revise treaties with China, in accord with the demands of the Nationalist group in that country, was impeded by the military excesses committed on the occasion of the fall of Nanking, in the latter part of March. Chinese soldiers engaged in looting, and supposedly members of the victorious Nationalist army shot to death Dr. J. E. Williams, vice president of Nanking University. American destroyers shelled Chinese soldiers attacking American refugees in the Standard Oil compound at Socony Hill, near Nanking, and a landing party rescued the refugees. American vessels were fired upon at various occasions, from the shore, in the region of the Yangtse mouth. Strong forces of marines were dispatched to Shanghai. Following these incidents, the United States joined Great Britain, France, Italy, and Japan in a joint note of April 11, demanding of the Hankow government apology and reparation for the Nanking outrages of March 24. In his separate reply to the United States, Eugene Chen, foreign minister of the Hankow government, asserted that the fundamental cause of troubled relations was the maintenance of unequal treaties between the powers and China. Definite steps toward an understanding with the Chinese authorities were later greatly hampered by the instability of power among the Chinese groups themselves.

Mexican Relations. In a memorandum to the Senate Committee on Foreign Relations, submitted January 12, Secretary of State Kellogg gave particulars of alleged Communistic activity in Mexico designedly hostile to the United States. The Senate nevertheless, January 25, passed the Robinson resolution, favoring the arbitration of questions relating to American property rights in Mexico, as an apparent indication of its opposition to any more vigorous course of proceeding. The resolution was taken as reflecting the reaction of the Senate to the President's special message of January 10, explaining the dispatch of troops to Nicaragua, and to the Kellogg memorandum. Embarrassment was added to the relations with Mexico by the appearance, in Mexico, of stolen or forged documents purportedly of American official origin, and later by alleged Mexican official papers appearing in the United States.

Ambassador Sheffield, resigning his post, was succeeded by Dwight W. Morrow, a member of the firm of J. P. Morgan and Company, whom President Coolidge appointed September 20. The new Ambassador's arrival at Mexico City at the end of October was marked by an improvement in the tone of diplomatic relations. The Mexican Supreme Court rendered early in December a decision taken as favorable to the claims of American holders of oil and other property concessions antedating the existing Mexican Constitution. See MEXICO, *History*.

Intervention in Nicaragua. The small naval force that had been landed on the coast of Nicaragua by Rear Admiral Julian L. Latimer in the year previous was increased in February by some 800 marines and sailors landed at Corinto. It was reported at the same time that the British government, feeling some disquiet over the safety of its nationals, had sent the cruiser *Colombo* to the Nicaraguan west coast. President Diaz, of the Nicaraguan established régime, proposed in March the execution of a treaty whereby the United States should guarantee political order. The Department of State at Washington was represented as opposed to entering into such a treaty. The United States forces in Nicaragua maintained a neutral zone at Puerto Cabezas, took possession of Corinto, on the west coast, garrisoned Managua, and policed the Escondido River to prevent the conveying of munitions and arms to the Liberal forces.

Admiral Latimer opened negotiations with the Liberal leader Sacasa, who offered to accept the joint mediation of the United States and four Central American governments. This proposal was not accepted. Instead, Henry L. Stimson of New York was sent to Nicaragua April 9, as personal representative of President Coolidge, to negotiate a settlement of the hostilities. The Liberal general, Moncada, announced May 4 that he would lay down his arms, in preference to fighting the forces of the United States. The State Department announced, May 6, that under an arrangement made by Mr. Stimson both parties in the Nicaraguan conflict would be disarmed, all persons in rebellion or in exile would receive amnesty, the Diaz cabinet would admit certain Liberals as members, a Nicaraguan constabulary would be formed under American officers, and an American force would continue in Nicaragua for the time being, while Americans would supervise elections to be held in 1928. Disarmament was hastened by the payment of $20 for every rifle surrendered by a Nicaraguan.

Sandino, alone of the Liberal leaders, refused compliance with this arrangement; Sacasa yielded, issuing a protest against the American action. Sandino attacked the town of Ocotal July 17, and was repulsed by American forces stationed there. The fire of the defenders and the bombs of five American airplanes were reported to have killed about 300 persons. Sandino withdrew thereafter to an inaccessible retreat on the northern border. See NICARAGUA.

Other Foreign Relations. Canada sent to Washington, as Minister of the Dominion, under the privilege of direct diplomatic representation then lately granted by the British Crown, Vincent Massey, who presented his credentials February 18. The Canadian Minister sought a modification of the order issued by the Department of Labor April 1, placing non-native inhabitants of the Dominion under the immigration quota system. On behalf of the Dominion government Mr. Massey presented a note to Secretary Kellogg June 8, regretting the immigration order as interrupting the free communication over the border established under the Jay treaty of 1794, and pointing out special hardship to inhabitants of Windsor, Ontario, engaged in daily work in Detroit. The State Department finally, November 29, announced the making of an arrangement by which native Canadians only would receive border crossing permits, but non-native Canadians commuters already engaged in daily crossing of the border would receive priority over others of their nationals in applications for immigration passport visas.

An American delegation headed by R. W. Boyden attended the International Economic Conference held at Geneva in May. The practice of the United States, to hold inquiries in foreign countries to determine the factory costs of dutiable goods entering America, with a view to altering tariff rates thereon, was attacked by Swiss and Swedish delegates to the Conference.

President Machado of Cuba visited the United States in May, and made his presence the occasion of an informal statement of the desire among Cubans that the United States should repeal the Platt amendment, as incorporated in the treaty between the two countries, under which the United States held the right to intervene in Cuba and to supervise elections there.

With Turkey, relations were resumed, in spite of the refusal of the Senate to ratify the treaty of Lausanne. Notes were exchanged between the two governments, February 17, agreeing to resume relations, and securing for the United States most-favored nation treatment in trade, for one year, and thereafter automatically for three-months terms until denounced.

Secretary of State Kellogg proposed in January that Chile and Peru solve the Tacna-Arica difficulty by allowing Bolivia to acquire the disputed provinces. The adverse reply of Peru brought this move to a standstill.

With regard to the policy of the Administration in censoring foreign loans sought in the American market, President Coolidge expressed himself informally October 14, as holding it to be the duty of the Executive to control foreign loans as an element in foreign relations, and with a view to preventing loans that would affect such relations adversely. The Administration withheld consent for a time to a French refunding loan and refused permission for Russian borrowing.

MISSISSIPPI RIVER FLOOD RELIEF. The most severe floods in the history of the region swept the lands bordering on the lower Mississippi River and its tributaries, between the latter part of March and early May of 1927. (See FLOODS; ARKANSAS; LOUISIANA; MISSISSIPPI.) It was estimated that more than 20,000 square miles were overflowed, and that some 700,000 persons were either driven from their homes or rendered dependent for the time being on outside assistance. The work of relief was carried on by the American National Red Cross organization, in coöperation with all available Federal and State agencies. President Coolidge appointed Secretary of Commerce Herbert Hoover to direct the work of flood relief. On April 22, President Coolidge issued a proclamation setting forth the emergency and recommending a general contribution to the relief fund of the Red Cross. Refugee camps were established at 80 points between Cairo, Illinois, and the mouth of the Mississippi River. At these camps some 340,000 refugees were furnished with shelter, food, clothes, bedding and sanitary care. As many as 20,000 were gathered at one time in a single camp. Rations were supplied to about a quarter of a million persons outside these camps. The camp sanitation offered a difficult problem, and was reported to have been handled with noteworthy success. In response to the President's appeal came subscriptions of about $14,000,000 up to the end of May. The entire work of relief handled by Secretary Hoover, however, cost about $16,000,000, according to a radio address that he delivered on May 28, and he solicited an additional $2,000,000. Federal governmental agencies expended in relief activities about $5,000,000 of government funds. The immediate work of relief was eventually completed by the return of the refugees to their homes. It then remained to rehabilitate the farming industry of the overflowed areas, and for this purpose various

P. & A. Photos

UNITED STATES MARINES TAKING UP POSTS AT THE INTERNATIONAL SETTLEMENT, SHANGHAI, CHINA

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UNITED STATES MARINES AFTER THE ACTION AT NUEVA SEGOVIA, NICARAGUA

UNITED STATES MARINES AT TROUBLE CENTRES

measures were taken. Among these was the creation, June 3, of the Flood Credits Corporation, at the suggestion of President Coolidge, and with the aid of the United States Chamber of Commerce and the Federal Farm Loan Board. This corporation took $1,750,000 of the stock of State corporations in Arkansas, Mississippi and Louisiana, which undertook to back the credit of flood sufferers needing to purchase agricultural material in order to resume farming.

DEPARTMENT OF JUSTICE. Several important cases were prosecuted by the Attorney General to determine the working of the recapture clause of the transportation act of 1920, with regard to the railroads. A case against the International Harvester Company was decided in the Supreme Court June 6, in favor of the company, it being found that the company had complied with the consent decree of 1918. Prohibition prosecutions in the fiscal year 1927 resulted in fewer jury trials, 3,747 in 1927 as compared with 4,090 in 1926, and fewer pleas of guilty. Fines and penalties imposed were $5,646,709 in 1927, a decrease of some $1,847,848 from the 1926 total. Court of Claims cases to the number of 609 were disposed of; their aggregate claims against the government were $145,537,418, and judgments obtained thereon were $11,238,567. Among the chief groups of criminal cases, those for postal violations terminated in the fiscal year numbered 2,227; "white slave" traffic prosecutions brought 444 convictions; bankruptcy law indictments increased by more than 100 per cent. The Federal prison population on June 30, 1927, was 18,788.

SHIPPING BOARD. The name of the Emergency Fleet Corporation was changed to the Merchant Fleet Corporation, by Congress, act of February 21. The Shipping Board in a report submitted to the Senate January 11 maintained that the merchant marine, if turned over to private ownership, could be successfully operated only under a government subsidy. In October the Shipping Board assumed more direct control of its subsidiary, the Merchant Fleet Corporation, T. V. O'Connor, chairman of the Board, becoming president of the Corporation as well. The move was interpreted in some quarters as tending to maintain the government owned merchant fleet permanently under government operation.

THE FEDERAL BOARD OF MEDIATION. This body, acting under the Watson-Parker act of 1926, ended a railroad wage dispute on February 5 by granting a flat increase of 7½ per cent in wages to some 31,000 enginemen and firemen employed on 27 railroad systems east of Chicago and north of the Ohio River. Several other like wage increases were later effected.

THE FEDERAL RADIO COMMISSION. Wave lengths and power allotments were assigned to 697 broadcasting stations of the country, going into effect June 16. The number of stations allowed to use 30,000 watts, the highest power assigned, was restricted to three, and wave length assignments were changed in many cases.

THE INTERSTATE COMMERCE COMMISSION. This body progressed with valuation of the railroad lines, and was sustained on important points by the Supreme Court in valuation litigation. (See JUDICIARY, below.) It rejected a plan, May 19, to merge the Missouri, Kansas and Texas and the Kansas City Southern railroad systems. See RAILWAYS.

CONGRESS

SIXTY-NINTH CONGRESS, SECOND SESSION. Congress reassembled after the year-end recess with a large programme on its hands. The Senate had still before it the questions attendant on the election, under circumstances pointing to the inordinate campaign employment of money by Senators-elect Smith of Illinois and Vare of Pennsylvania. The proposal for legislation to relieve the economic condition of the farmers awaited disposal. A banking act, changes in the prohibition law, legislation for the regulation of radio broadcasting, matters relating to defense, the amendment of the immigration law, several issues affecting external relations and the question of tax reduction, among other subjects, all claimed early attention.

Strong opposition developed among the majority party in the Senate to the plan to continue the powers of a special Senate committee of the 69th Congress, the so-called Reed Committee, which had previously proceeded with investigation of the campaign expenses of Smith and Vare. It was the expectation that if this opposition should succeed, the powers of the special committee would come to an end, and the question of the admittance of these Senators-elect would come before another committee, the standing Committee on Privileges and Elections, for presentation in the Seventieth Congress.

McNary-Haugen Bill. Opposition to the passage of the McNary-Haugen bill, a measure to provide for the relief of the farmer class by means of a great revolving fund to be drawn from the Treasury and used to finance the carrying and export sale of surplus quantities of several leading farm products, was reduced by the adroit operations of the friends of the bill. It was provided in this measure that a specially constituted agency should acquire by purchase with this fund quantities of the designated products in excess of the home demand for them, and should sell the surpluses thus acquired to the foreign market, presumably at a loss; the loss to be made up by the levying on farmers of an equalization fund, payable by them in proportions established by the size of the crops of the specified commodities that they had raised. The bill came to a vote in the Senate February 11, and was passed by 47 votes to 39. The affirmative total included 24 Republicans, 22 Democrats, and the single Farmer-Labor Senator; that against it, 22 Republicans and 17 Democrats. The vote was exceptional in its complete disregard of party lines on a matter in which the Administration was known to hold strongly adverse views. The House of Representatives adopted on February 15 a rule by which it substituted the Senate bill for a similar House measure. On the 17th the House passed the Senate bill by a vote of 214 to 178, in which parties, as in the Senate, were both split. The measure then went to the President. He returned it with his veto, based in part on his disapproval of it as unsound and in part on the opinion that certain of its provisions, notably that making farmers assessable for the replenishment of the revolving fund, were unconstitutional. Attempts to repass the measure over the Presidential veto failed.

Banking Legislation. Within a short interval of the time of the passage of the McNary-Haugen bill, there was enacted a measure known as the McFadden-Pepper bill, dealing with banking. It was asserted that supporters of this measure in the House had reached an agreement with supporters of the farm relief act for mutual aid. The House passed the measure January 24, and the Senate, which had previously passed the bill, adopted a conference report on it February 16. The measure as enacted provided indefinite extension of the charters of the Federal Reserve Banks and permitted national banks to establish branches within the limits of their home cities or towns, in such States as allowed State bank branches. President Coolidge signed the measure February 25. The fact that many representatives of either party who voted for this measure voted likewise for the McNary-Haugen bill gave some support to the assertion that friends of each measure had an understanding. See BANKS AND BANKING.

Armaments. Congress showed in several respects a disposition to provide for greater military and naval armament than the Administration had contemplated. The Senate Committee on Appropriations put into the Naval appropriation bill on January 17 a provision of $1,200,000 for the commencement of construction on three cruisers that had been included originally in the 1924 programme, and of which the construction had been put off thereafter in accordance with the expressed wish of the President. Republicans from coast States, combining with numerous Democrats, voted for the bill with this provision included, when it came to a Senate vote February 1. It passed by a vote of 49 to 27. The House having passed a Naval appropriation bill without the Senate's cruiser construction feature, a conference committee met and disagreed on this point of difference. The Senate thereupon, February 22, instructed its members on the conference committee to insist that the cruiser appropriation be adopted.

The House voted the resulting conference report on the 24th, and the bill went to the President with a cruiser appropriation included. It also fixed the navy personnel at 83,200 men and provided $9,480,000, available in the fiscal year 1928, for additional naval airplanes, to the number of 245; the Naval appropriation bill carried $316,000,000 in all. President Coolidge signed it without comment March 2. Congress also passed an appropriation for elevation of heavy gun firing angle and for general modernizing of the battleships *Oklahoma* and *Nevada.* A measure was enacted and signed appropriating $4,654,000 for improving the Coco Solo submarine base in the Canal Zone, Pearl Harbor and other naval stations. With regard to army strength, the House voted into the army appropriation bill provision for the maintenance of the strength of the regular army at 118,750 men. In so doing it disregarded a recommendation of the Budget Director, that army strength be reduced to 115,000 men.

Foreign Affairs. The question of bringing the United States under the jurisdiction of the World Court (q.v.) was revived by a Senate resolution, proposed by Trammell of Florida, that the resolution of a previous session, to bring the United States under the World Court, with reservations, be rescinded. The Trammell resolution was defeated by a vote of 59 adverse to 30 in favor of it, on February 9. The World Court issue thereupon fell into abeyance in the Senate. With regard to participation in the economic conference of May, 1928, under the auspices of the League of Nations at Geneva, both houses voted without demur an appropriation of $15,000 asked by the President, in a special message of February 5, to cover the cost of American participation.

The Senate considered in January the treaty with Turkey previously executed at Lausanne, an instrument for the reëstablishment of peaceful relations with the Turkish government. The Committee on Foreign Relations, headed by Borah of Idaho, favored ratification of this treaty, but a strong opposition developed under the leadership of King of Utah, who maintained that the treaty failed to provide for the security of Armenians and of Christians generally in the Turkish territory. On a vote taken January 18, ratification was refused by 50 adverse votes to 34 in favor.

In their attitudes to the Administration policy toward Mexico and toward Nicaragua, the two houses were somewhat divided. President Coolidge in a special message to Congress on the subject, delivered January 12, declared that he had evidence that munitions, formerly possessed by the Mexican government, had been shipped to revolutionists in Nicaragua from Mexican ports, with knowledge of Mexican officials. Secretary of State Kellogg informed the Senate Committee on Foreign Relations January 12 of his belief that the Mexican government was seeking to establish a Bolshevist and anti-American régime in Nicaragua.

Soon after these declarations the House of Representatives Committee on Foreign Affairs approved on February 1 the Fairchild resolution, indorsing the Administrative policy. Strong Democratic opposition developed, and the resolution did not come to a House vote, up to the end of the session. A resolution offered by Moore of Virginia, hostile to the Administration course, did not emerge from committee. In the Senate, Wheeler of Montana defended the Nicaraguan Liberals as early as January 3, and offered a resolution for the withdrawal of the American forces. Borah of Idaho attacked intervention on January 7. Reed of Missouri and Heflin of Alabama followed suit. Criticism in the Senate gave occasion to the President's special message on the subject, above mentioned. Senator Borah thereafter, February 22, offered a resolution that the Senate Foreign Relations Committee visit Central America in the recess of Congress, and study the subject at first hand. The committee itself rejected on February 26 this somewhat exceptional proposal to send Senators as a direct commission of inquiry into a foreign country, but it favored an inquiry to be held at Washington during the recess. The Robinson resolution, favoring arbitration of differences with Mexico, passed the Senate January 25.

With regard to Mexican dealings with the American oil interests in that country, the Senate adopted, February 3, a resolution calling on the Secretary of State to furnish it with information on Mexican oil concessions, and on the number of the holders of these who had accepted the restrictions placed on concessions by the then existing laws of Mexico. Mr. Kellogg complied February 16. In its treatment of the Nicaraguan and Mexican matters the Senate gave evidence that the Administration would meet with strong combined Democratic and insurgent Republican opposition in any but a modified form of its policy.

Radio Regulation. A compromise between the Dill (Senate) and the White (House) bill resulted in the final passage, February 18, of a radio control measure. This measure, as signed by the President, provided that he appoint a Federal Radio Commission of five, empowered for one year to exercise broad regulatory functions, including the allocation of radio wave lengths. Penalties were provided for infraction of regulations that it might make and for false statements to it. The measure contained provisions against the monopolization of radio broadcasting and against the granting of licenses to foreign governments or foreign-owned companies. Repeal of earlier radio broadcasting legislation was provided, so that the commission might have a clear field. At the end of a year the regulatory powers of the Commission were to pass to the Department of Commerce, but it was to retain the power to adjudicate appeals in matters of radio regulation.

Tax Legislation. The Democratic minority in the Senate sought to promote action on the proposals of President Coolidge, made late in the year previous, that the session should enact a reduction in the income tax rates. Against minority opposition a resolution of Senator Norris of Nebraska was passed, February 4, recording it to be the sense of the Senate that Treasury surplus should be applied to reducing the National debt. In order to enable the Treasury to repay some $175,000,000 of taxes illegally collected in previous years, from some 308,188 claimants, an appropriation was included in the urgent deficiency bill, which however failed of passage. See TAXATION.

Prohibition Enforcement. An act passed March 3, by the House, and previously by the Senate, placed the enforcement of the prohibition law in the hands of a bureau created for this purpose, and forming a distinct subdivision of the Treasury Department. To this agency, styled the Bureau of Prohibition, was to be transferred the organization of its predecessor, the Prohibition Unit. The act effected a profound change in the status of the prohibition personnel by subjecting its members to the civil service rules. See PROHIBITION.

With regard to immigration, the Senate passed in February and the House in turn passed March 3 a joint resolution to the effect that the provision as to the admittance of quotas of immigrants as determined by their nations of origin, in the Immigration act of 1924, should become operative only on July 1, 1928, instead of so doing July 1, 1927, as contemplated in the act. Salaries of judges were increased; those of Supreme Court Justices to $20,000 and of the Chief Justice to $20,500. Federal acquisition of the Cape Cod Canal was authorized in the river and harbor act.

A filibuster in the Senate put a virtual end to effective action in that body in the last days of the session. In consequence of this the adjournment on March 4 left a considerable list of bills unpassed. Among these were a second deficiency bill carrying $93,716,753, much of it urgently required for the conduct of various governmental activities, the Federal courts included; a large appropriation for construction of public buildings; a bill for the restoration of enemy alien property; a measure for the increase of the retirement allowances of disabled emergency officers of the War period; legislation to enable the government to replenish its stock of medicinal liquor; measures relating to water-power developments at Muscle Shoals and at Boulder Dam; and postal rate legislation. No action was taken on the resolution of Representative Fairchild of New York to amend the Federal Constitution so as to render ineligible for a further term a President who had served one full term and two years or more of a second. The recurring resolution to amend the Constitution so as to move the inauguration of a President forward from March to January and the convening of a Congress in regular session from the second December after its election to the January immediately after was not voted upon. The House on March 2 again voted, this time by 198 to 183, against a bill to reapportion representation (as provided by the Fenn bill) according to the 1920 census.

The closing filibuster in the Senate prevented action in that body to prolong the life of the Reed committee. The status of this committee consequently remained in doubt, and it lacked funds to pursue its investigation of the Senatorial elections of 1926 in Pennsylvania and Illinois. The committee, however, maintained its existence in fact, and later the President of the Senate, Vice President Dawes, recognized its existence by filling vacancies with interim appointments.

SEVENTIETH CONGRESS, FIRST SESSION. The Seventieth Congress convened on December 12. The Senate was composed of 48 Republican and 47 Democratic members and 1 Farmer-Labor member; the House of Representatives, of 237 Republicans, 195 Democrats, 2 Farmer-Labor members, and one Socialist. Of these numbers, however, 3 among the Republican Senators-elect were opposed with regard to their taking their seats, and one Representative was similarly challenged. All four were Republicans: the Senators, Frank L. Smith of Illinois, William S. Vare of Pennsylvania and Arthur R. Gould of Maine; the Representative, James M. Beck of Pennsylvania. Because of the almost even balance of parties in the Senate, resulting from Democratic gains in the Senate elections of 1926, the contest over seating the challenged Senators-elect was earnest and persistent. The House on the opening day reëlected Nicholas Longworth of Ohio as Speaker.

In the Senate, Norris of Nebraska offered resolutions to block the admission of Smith and of Vare until formal investigation of pending charges against them had been made. Uncertainty as to the attitude of several insurgent members of the Republican group in the Senate led to the postponement of the election of officers of that body, lest the Democratic group, with the support of the Republican insurgent wing, should establish control. Later, however, the Senate Democrats united on the policy of avoiding an attempt to assume responsibility for organizing the chamber. On December 9, with the support of the insurgent group, and of Shipstead of Minnesota (Farmer-Labor) a Republican organization was effected.

President's Message. The annual message of the President was read to Congress December 6. Those parts of it which bore most directly on proposed legislation were: A proposal that Congress set up a board to promote coöperative marketing of farm products and furnish it with a revolving loan fund to employ in its operations; a suggestion that Congress provide for the building of improved dikes and spillways for the control of floods in the Mississippi River and its tributaries, the United States assuming a greater share of the cost than it had in previous work, but the individual States carrying such share of the expense as could fairly be charged to them; a recommendation that Congress appropriate for the building of additional cruisers, without, however, following a policy of competitive naval armament; advocacy of the sale of the government-owned merchant marine to private acquirers, and of the disposal of the Muscle Shoals power development to private parties. The message also recommended legislation to render possible the completion of the return of property of former enemy aliens, seized during the war, and action to promote and simplify the consolidation of railroads.

The President's budget message was delivered separately, December 7. It represented the estimated ordinary receipts of the government for the fiscal year ending June 30, 1929, on the basis of the existing revenue law, as $3,809,497,314; proposed total expenditures, from ordinary receipts, of $3,556,957,031; and showed a resultant prospective excess of receipts totaling $252,540,283. In these figures the postal revenue and expenditure were not included. Tax reduction was recommended, but not to exceed $225,000,000. The estimated total of ordinary expenditure for 1929, reduction of public debt excluded, was $2,294,170,372, as against totals for the fiscal year 1928 of $2,158,057,611 in appropriations and $158,441,685 in supplemental appropriations. The 1929 estimate included nothing additional for flood-control construction. The need of maintaining a balance of the budget was emphasized, it being pointed out that the President could not legally sanction appropriations in excess of the total at which the budget would balance.

The Revenue Bill. While general agreement between the Administration and all groups in Congress existed, to the effect that the surplus in the Treasury both warranted and to a certain extent imposed tax reduction, views differed widely both as to the extent and as to the direction in which taxes should be cut. During the interval between March 4 and the convening of the new Congress, the House Committee on Ways and Means had studied the revenues in detail and had framed a revenue bill. This bill was introduced in the House December 6. It exceeded the recommendation of the Treasury to the extent of providing for a diminution of the corporation income tax rate to 11½ per cent a year, from 13½; the Treasury had favored a cut to 12 per cent. The committee originally estimated that this provision would lower the revenue by about $166,000,000, and later the estimated diminution was put somewhat higher. The bill also allowed an increase of credit to $3000 (from $2000) to corporations with $25,000 income or less; provided exemption up to $1, on the tax on admittance to places of entertainment; allowed a reduction of the tax on dues to 5 per cent, from 10 per cent; halved the automobile tax, lowering it to 1½ per cent; and made provision for the repeal of the stamp tax on sales of produce and the reduction of the stock transfer stamp tax to 1 cent, from 2 cents.

The entire estimated reduction contemplated by the bill was $232,735,000. It thus distinctly exceeded the $225,000,000 set by the President and the Secretary of the Treasury as the safe maximum. It made no provision for further reduction of the personal income tax, and disregarded recommendations of Secretary Mellon as to the desirability of cutting surtaxes and the estate tax. Democratic Representatives, led by Garner of Texas, contended in the House for more extended tax reduction than the bill proposed. An amendment wiping out the automobile tax altogether was passed, December 14, by a vote of 166 to 142, by a combination of Democrats and some Republicans, notably the Michigan delegation. An amendment graduating the income tax for the benefit of small corporations was likewise adopted, December 12. The House passed the bill with these and certain other amendments, December 15, by a vote of 366 to 24; it was estimated that the measure as sent to the Senate involved a total reduction of $289,765,000 in yearly revenue.

The bill on entering the Senate went to the finance committee, which postponed action on it, in apparent conformity with a published declaration of Secretary Mellon, that the ability of the revenue to meet the increased cut could be judged better after the receipt of the installment of Federal tax payments due Mar. 15, 1928.

Other Bills. The House passed December 20, and sent to the Senate, a bill for the settlement of claims adjudicated by the Mixed Claims Commission with regard to aliens in the late war. It provided for return of property of German nationals, previously seized, and remaining in the possession of the Alien Property Custodian; the settlement of German nationals' claims against the United States for seized ships, patents and the like: settlement of American citizens' claims against the German government. Twenty per cent of former property of Germans was to be retained by the Custodian for six years to assure settlement of American claims by Germany; the lesser alien owners were, however, to be reimbursed or reinstated in their property immediately, up to claims of $100,000; Grover Cleveland Bergdoll and other fugitives from the draft were to be excepted from benefits.

President Coolidge submitted December 8 a plan of flood control for the Mississippi valley, prepared by Major General Edgar Jadwin, Chief of Engineers, U. S. A., calling for the expenditure of $296,400,000 in works along the lower course of the river, $185,400,000 for actual flood control and $111,000,000 for channel stabilization. The plan called for expenditure over 10 years, the first year at $25,000,000 and succeeding years at some $30,000,000 a year. The United States was to bear 80 per cent of the cost and States directly affected the remainder. A strong demand among the Mississippi States that the nation bear the entire cost and that it extend the works to the upper river and tributaries prevented the progress of this legislation up to the close of the year.

Naval Armament. Chairman Butler of the House Committee on Naval Affairs presented to the House December 14 a vast five-year naval building programme, calling for $725,000,000 of construction. The plan involved the building of 25 light cruisers, 9 destroyer leaders, 32 submarines and five aircraft carriers, and was in consonance with the views of Secretary of the Navy Wilbur. The House on December 9 sustained the position of the preceding Congress on gun elevation by defeating a prohibitory clause aimed against the project, which had been inserted in the deficiency bill; an element in the House continued to contend that the proposed elevation of the heavy guns on the battleships *Oklahoma* and *Nevada* was contrary to the engagements made with Japan and Great Britain.

Cases of Vare and Smith. An effort, led by Reed of Pennsylvania, was made by a group of "regular" Republican Senators to prevail on the Senate to swear in Senators-elect Vare of Pennsylvania and Smith of Illinois in advance of the determination of the charges affecting their qualifications. This effort failed in the party caucus preliminary to the opening of the session. Vice President Dawes ruled December 6 that the cases of the two candidates for admittance took precedence of other business, and the Norris resolution against admitting Senator-elect Smith was debated. On the following day the Senate by vote of 53 to 28 denied Smith admittance, and referred his case to the committee on campaign funds (the Reed committee) for further investigation. It made like disposal of the Vare case December 9, by vote of 56 to 30. The significance of these proceedings lay largely in the fact that, once admitted, neither individual could have been cast out from the Senate by less than a two-thirds vote. In the House, James M. Beck, who had been elected to fill a vacancy from a Philadelphia district, was challenged by Garrett of Tennessee, Democratic floor leader, on the ground that he was not an actual inhabitant of the State of Pennsylvania. He was admitted to take the oath, whereupon the investigation of his case was committed to election committee number 2.

The Hearst Documents. Newspapers controlled by William Randolph Hearst having published serially, between November 14 and December 10, the alleged text of documents to the purport that high officers in the Mexican government had planned to pay $1,215,000 to four United States Senators, whose names were however not then published, the Senate, December 9, created a special committee to investigate the allegations. See MEXICO, *History*.

JUDICIARY

Progress of Oil Cases. The United States Supreme Court in a decision rendered Feb. 28, 1927, held that the Elk Hills oil leases had been corruptly obtained and that the property should be returned to the possession of the government. The same court ruled, October 10, that the Teapot Dome oil leases were fraudulent and void. It was estimated that the court mandate in the Elk Hills case required the Doheny interests to reimburse the government to the extent of from $10,000,000 to $20,000,000, in money or its equivalent. The Court refused to grant countervailing payment to the Doheny interests for development work on the leases or for storage tanks built at Pearl Harbor and San Pedro. Harry F. Sinclair was tried in the District of Columbia Supreme Court for contempt of the Senate in refusal of testimony on the Teapot Dome leases, and was found guilty March 17. A sentence of three months of prison was imposed. The District Supreme Court ordered, November 15, the seizure of $100,000 of property of a fugitive witness for the conspiracy prosecution of Sinclair, Harry M. Blackmer, under a statute passed by Congress for the purpose. Fall and Sinclair were brought to trial before Justice Siddons of the District Supreme Court in October on the conspiracy charge related to the Teapot Dome leasing. A mistrial was declared November 1, when it came to light that agents of the defense were engaged in following or attempting to approach the jurors. William J. Burns, head of a detective agency and former head of the Federal Bureau of Criminal Investigation, affirmed before Justice Siddons that men in his employ, as the agents of a business subordinate of Sinclair, had shadowed jurors.

Alien Property Prosecutions. Former Attorney-General Harry M. Daugherty and former Alien Property Custodian Thomas W. Miller were retried in February, 1927, on the charge of conspiracy to defraud the Federal government in the transactions relative to the American Metal Company, in the New York Federal District Court. The jury disagreed as to Daugherty, but found Miller guilty. Miller was sentenced to 18 months' imprisonment and a fine of $5000.

Trust Act Cases. The United States Supreme Court sustained, February 21, the conviction of 20 individuals and 23 corporations on the charge of having sought illegally to fix pottery prices. Eight of the defendants were sentenced to prison, in the Federal District Court of the Southern District of New York, the sentences being later suspended; and fines aggregating $160,000 were imposed. On April 11, the United States Supreme Court held that the Bedford Cut Stone Company and other quarrying corporations were entitled under the Clayton Act to injunctions against the activities of a labor organization, the Journeymen Stone Cutters' Association. The Court on June 6 voided the government's bill against the International Harvester Company to the effect that the company had violated the anti-trust law since the consent decree entered against that company in 1918.

Revenue Cases. The United States Supreme Court in a decision rendered by Justice Stone March 21 invalidated laws of Wisconsin, Kentucky, and Minnesota imposing taxes on shares of National banks, in so far as such taxes were levied against the banks at a higher rate than against competing capital. The Circuit Court of Appeals at New York, in the McNeir case, January 11, affirmed the constitutionality of the gift tax imposed by the Revenue law of 1920, and subsequently repealed. The Supreme Court, in Blodgett against Holden, held on November 1 that the gift tax of 1924 did not apply to gifts made before the passage of the act. The United States Court of Customs Appeals decided February 24 that the flexible duty provision of the tariff act of 1922 was valid, and not an undue delegation of the lawmaking power to the President.

Interstate Commerce Commission Cases. The United States Supreme Court denied judicial review of valuation orders of the Commission, February 21, in the case of the Los Angeles and Salt Lake Railroad Company. A special court of three Federal judges passing on the case of the St. Louis and O'Fallon railway, December 10, sustained the Commission's order that this railroad pay $226,000 as representing one-half its net income above 6 per cent on the commission's valuation of the property. The Court found itself not called upon to review the valuation methods that had been employed. See RAILWAYS.

UNITED STATES MILITARY ACADEMY. A government institution at West Point, New York, for the theoretical and practical training of cadets for the military service of the United States; opened in 1802. On Sept. 1, 1927, the total number of cadets was 1259, distributed as follows: first class, 263; second class, 310; third class, 291; fourth class, 395. There were 194 members on the faculty. The academy is a component part of the regular army of the United States and is maintained solely by appropriations from the War Department, which in 1927 were $2,246,587, for salaries and maintenance of public works, and $861,000 for continuing construction. The library contained 108,000 volumes. Superintendent, Maj.-Gen. Edwin B. Winans, U. S. Army.

UNITED STATES NAVAL ACADEMY. A school for the education and training of midshipmen, at Annapolis, Md.; founded in 1845. The total number of midshipmen at the beginning of the academic year 1927–28 was 1551, distributed as follows: first class, 182; second class, 263; third class, 504; fourth class, 602. The faculty numbered 221. The library contained 65,800 volumes. Midshipmen after graduation are commissioned as ensigns in the United States Navy, and occasionally to fill vacancies in the Marine Corps and in certain staff corps of the Navy. Superintendent, Rear Admiral L. M. Nulton, U. S. Navy.

UNIVERSALISTS. A religious denomination existing chiefly in the United States, Canada, and Japan. It holds as parts of its doctrine the universal fatherhood of God and the final harmony of all souls with God. Its churches are grouped in 28 State Conventions and 2 State Conferences. A General Convention, held biennially, met in 1927 at Hartford, Connecticut. A report on church unity, adopted by the Convention, was significant in that it emphasized that the basis of Christian unity is to be found not in a common creed or similar practices of various churches, but in the recognition that Christianity is primarily a way of life. The Convention decided to proceed as rapidly as possible with the building of a Universalist National Memorial Church in Washington, D. C., and in putting into operation in the near future a ministers' pension plan. Resolutions adopted put the Convention on record as favoring the abolition of capital punishment and also as favoring the outlawry and abolition of war, either offensive or defensive.

The number of churches in 1927 was 628; ordained ministers, 500; communicants and adherents, 86,983; Sunday schools, 421. The denominational periodical, the *Christian Leader*, is published weekly. Headquarters of the denomination are 176 Newbury Street, Boston, Mass. The Rev. Frank D. Adams, D.D., of Detroit, Michigan, was president of the General Convention in 1927.

UNIVERSE, STRUCTURE OF. See ASTRONOMY.

UNIVERSITIES AND COLLEGES. ENROLLMENT. Dr. Raymond Walters for a number of years collected registration statistics from a group of American colleges and universities. He reported in *School and Society* the enrollments in 211 institutions from which reports were received as of Nov. 1, 1927. The enrollment in 42 institutions having 3000 or more students had increased 28 per cent since 1922. The increase over the five-year period for the entire group of 211 institutions was 25 per cent. The 10 largest institutions based upon regular full time students were California, 17,311; Columbia, 13,275; Illinois, 12,033; Minnesota, 11,307; New York University, 10,218; Ohio State, 10,035; Michigan, 9700; Wisconsin, 8942; Harvard, 8030; and Pennsylvania, 7565. The ranking of the institutions was changed when part-time and summer school enrollments are considered. Columbia with an enrollment of 32,244 resident students headed the list. California with 25,534 came second, and New York University with 22,768 ranked third.

The three largest summer schools were: Columbia, 13,857; California, 9857; and Chicago, 6474. The largest exclusively women's colleges were: Hunter, 4041; Smith, 2077; Wellesley, 1533; Simmons, 1416; Florida State College for Women, 1401; Vassar, 1149, and Goucher, 1053.

The University of California had the largest enrollment of men undergraduate students, 4002, and also the largest enrollment of women undergraduates, 5690.

The United States Bureau of Education published the enrollment statistics for 402 institutions engaged primarily in teacher training. Of these 101 are classified as teachers' colleges, 102 as state normal schools, 27 as city normal schools, 108 as county normal schools and 64 as private normal schools. The most noteworthy change since 1920 was in the increase in teachers' colleges. In that year there were only 46 institutions classified as teachers' colleges.

The total number of students enrolled in teacher-training institutions in 1926 was 494,290. In 1910 there were only 113,685 enrolled. There was a total of 960,000 teaching positions in the United States. It is evident, therefore, that there were enough persons enrolled in 1926 to fill one-half of the teaching positions in this country. The problem of placing the graduates is an increasingly difficult one. Several cities had abolished their teacher training schools because they could not place the graduates. The average cost per student based upon enrollment and expenditures of all classes of institutions is in excess of $250 per year; an over supply of teachers, therefore, represents a financial loss that the states are beginning to consider.

GIFTS AND BENEFACTIONS. Many large gifts for educational purposes were made during the year. Among them were the following: The late Henry Edwards Huntington left $8,000,000 to be used exclusively for research in American and English history. John D. Rockefeller, Jr., gave $1,750,000 to the University of California to establish a Pacific Coast International House similar to the one in New York City. George C. Booth, Detroit publisher, gave $6,500,000 toward establishing the Cranbrook Foundation. The residuary estate of the late Olivia Phelps Stokes, which might amount to $1,500,000, was bequeathed to Barnard College.

The Albany Medical College received a gift of $100,000 from Mrs. James Munroe Lown to endow a chair of pathology. Antioch College received $300,000 from Mrs. C. F. Kettering for a new science building. Roger Babson, statistician and founder, gave to Babson Statistical Institute of Wellesley Hills $1,200,000 and agreed to donate $60,000 annually until his death. Barnard College received from the late Mrs. Fanny Foster Clark $100,000 to establish a Thomas F. Clark Students' Loan Fund. Bowdoin College received from Augustus F. Moulton $175,000 for a social centre and also a promise of funds for maintenance and $25,000 more if needed, and also $150,000 from the estate of Dr. Thomas V. Coe. Bryn Mawr College was to receive $25,000 and the College Alumni Association property, valued at $1,000,000, from the Charles L. Tiffany estate. The college also was to receive $369,520 by the will of Mrs. Alice D. Jackson.

The University of California was awarded $250,000 under the will of Edward F. Searles; from Mrs. Phillip Ernest Bowles the university received funds to build the first unit in a dormitory system and to endow two fellowships, the whole amounting to about $300,000, and from William A. Clark, Jr., property valued at four or five million dollars; also from Mrs. Clara Hollman Heller, for the support of a professorship in law and research in social economics, $186,000.

Dr. Ambrose Swasey of Cleveland gave $100,000 for the establishment of a chair of physics in the Case School of Applied Science. The graduate Library School, Chicago University was endowed by $1,000,000 from the Carnegie Corporation. The University of Chicago also received the following gifts: By the will of the late George French Porter, $200,000; from Mrs. Gertrude Dunn Hicks $300,000 for an orthopædic hospital; from George Herbert Jones $415,000 for the construction of the George Herbert Jones Research Laboratory; from the General Education Board $250,000, and $30,000 for the improvement of the Haskill Oriental Museum; also $750,000 by the will of Edward T. Jeffrey, banker, for the Free School of Mechanic Art.

Colgate University received from Edward S. Harkness $250,000 for a new dormitory, and from Colonel Austen Colgate one-fourth of his residuary estate. The estate is estimated at several million dollars. Columbia received $100,000 toward the new medical buildings. Cornell University was to receive in time the sum of $150,000 from the estate of J. Norris Oliphant. Col. Henry W. Sackett of New York gave $200,000 to Cornell University for the landscape development of the campus. Cornell also received from the Charles Lathrop Pack Forestry Trust $130,000 to endow a research professorship in forest soils, also from the estate of the late Payne Whitney not less than $500,000.

Dartmouth received $373,024 from the estate of Mrs. Helen L. Bullard and from Randolph McNutt $750,000. Charles F. Brooker left $150,000 to be divided equally among Yale University, Stanford University, and Dartmouth College. Duke University received $200,000 toward its endowment fund from C. C. Dula; the late Edward T. Conner of Georgia willed approximately $1,000,000 to be divided among the collegiate institutions of the state. Dr. James L. Minor gave property valued at $100,000 to the George Peabody College for Teachers.

George Washington University received a gift of $1,000,000 to establish a school of government. This was made by the Supreme Council of Scottish Rite Masons, Southern Jurisdiction.

Annie Downing Wilson of Cambridge left in trust $150,000, the income of which is to be used by Harvard University to maintain a professorship of applied astronomy. Harvard announced two gifts of $1,000,000 each, by George F. Baker and William Ziegler, Jr. This money was donated toward maintenance of teaching salaries and endowment of professorships. By the will of the late Nina Lea, Harvard University was to receive $150,000 to endow professorships. J. D. Rockefeller, Jr., offered a conditional gift of $100,000 toward the Harvard Law School fund.

Senator James E. McMurray gave $125,000 toward the building fund for the Illinois Woman's College. The estate of the late Thomas Patterson, at the death of Mrs. Patterson, was to go to the Jefferson Medical College, the hospital of the University of Pennsylvania Museum and School of Industrial Art, and Bryn Mawr Hospital. The estate amounted to $2,782,003. The Johns Hopkins University and the Peabody Institute were to receive eventually half of the residue of the $500,000 estate of James Swan Frick. The Johns Hopkins University also received $750,000 from the General Education Board to establish a medical library.

Keuka College received $150,000 from the Ball Brothers, glass manufacturers. Lafayette College received from John Markle, $500,000. Lehigh University received $1,000,000 from James W. Packard for the erection of an electrical and mechanical laboratory. The Massachusetts Institute of Technology received $100,000 from Charles Hayden. The institute was also granted $230,000 for an aëronautical engineering building by the Daniel Guggenheim Fund for the Promotion of Aëronautics. The University of Michigan received a fund of $225,000 from anonymous donors for a cancer research laboratory. John D. Rockefeller, Jr., gave to the Newton Theological Institution, Newton Centre, Massachusetts, $100,000.

New York University received $500,000 from Emily O. Butler. Oberlin College received a gift of $100,000 from Andrew H. Noah. The medical Department of the University of Oregon was granted $130,000 by the General Education Board. The University of Pennsylvania received $800,000 from Eldridge R. Johnson for research in medicine, and from Miss Selena B. McIllhenny $150,000 for the erection of a memorial dormitory. An anonymous gift of the sum of $250,000 for building and $50,000 for an annual income was made for the College of Preachers of the Washington Protestant Episcopal Cathedral, a post-graduate school for clergymen. Princeton received a gift of $200,000 from Miss Awenthalyn Jones, for a chair in physics. Robert Forsythe left $100,000 to the Rensselaer Polytechnic Institute. The University of Rochester received $2,407,151 from a former mayor of Rochester, James M. Cutler. John F. Lee willed $376,663 to St. Louis University. Swarthmore College received $100,000 from Morris L. Clothier. Temple University received $100,000 from Cyrus H. K. Curtis to be applied to the endowment fund. The University of Texas received a bequest of $1,125,000 from the late J. R. McDonald to be used for an astronomical observatory. Trinity College, Connecticut, received a gift of $150,000 from Charles W. Cook. It also received $500,000 from William G. Mather for a new chapel.

Tufts College realized $2,000,000 on Florida land willed the college three years ago by the late Austin B. Fletcher. Tuskegee Institute was to receive $184,760 from the estate of Mrs. Alice D. Jackson. Union Theological Seminary received $150,000 from the estate of Emily O. Butler. By the will of James Griswold Wentz of New York City, Urbana University received a bequest of $100,000. The University of Virginia was to receive $600,000 by the will of Graham F. Blandy. Washington University at St. Louis received $376,663 by the will of the late John F. Lee. The General Education Board and Edward Mallinckrodt and family provided $1,000,000 for the Washington University School of Medicine to use in radiological cancer research. George W. Alden gave $100,000 to Washburn College at Topeka. Through a gift of $350,000 from John D. Rockefeller, Jr., Wellesley College was able to build a new dormitory. Joseph B. Reynolds, president of the Kansas City Life Insurance Company, gave $100,000 to William Jewell College.

General Charles H. Pine gave $150,000 to Yale University. The university also received two gifts of $1,000,000 each, one from Mr. George F. Baker and the other from William Ziegler, Jr.; from John W. Sterling $1,000,000 to establish professorships in biology, palæontology, English history and law; from Charles Cox a gift of $150,000 toward a new gymnasium; by will of the late Payne Whitney not less than $300,000; from Charles H. Ludington $300,000 to establish a department for personnel study; from J. A. Garver a gift of $100,000 to endow a chair of jurisprudence; from the General Education Board $850,000 to the Yale School of Medicine and from John A. Hoober of York, Pennsylvania, $100,000 to establish a professorship of comparative religion in the Yale Divinity School. Nathan Lamport, President of Yeshiva College, New York City, gave $300,000 toward the $5,000,000 fund being raised for the college.

New Presidents. During the year the following new presidents of universities and colleges were reported: Averett College elected Dr. J. W. Commack president. Dr. Arthur Stanley Pease was inaugurated president of Amherst College. Dr. Homer LeRoy Shantz was elected president of the University of Arizona. W. W. Trent was elected president of Broaddus College to succeed Elkanah Hulley. Dr. Charles J. Turck was elected president of Centre College and Kentucky College for Women, an affiliated organization. Dr. Herbert J. Bergstahler was elected president of Cornell College to succeed Dr. Harlan Updegraff. Dr. Avery Albert Shaw was installed as president of Denison University. Fred M. Hunter became president of the University of Denver. Dr. Earl E. Harper was made president of Evansville College. Ambrose L. Suhrie was elected president of Georgia State College for Women. Franklin College, Indiana, made Homer P. Rainey president. Frank R. Thomas was made president of Fresno State College. Dr. Cloyd Heck Marvin was elected president of George Washington University to succeed Dr. William Mather Lewis, Dr. Alfred F. Hughes took the presidency of Hamline University, Mrs. Alice C. Sie accepted the presidency of Indianapolis Teachers' College. Dr. Raymond M. Hughes was chosen president of the Iowa College of Agriculture and Mechanic Arts. Dr. James Ephraim Coons became president of Iowa Wesleyan College to succeed Dr. U. S. Smith.

Dr. William Mather Lewis became president of Lafayette College succeeding Dr. John Henry MacCracken. Donald Wilson Miller was elected president of Lees Collegiate Institute. The Rev. William Hallock Johnson, D.D., was installed as the fifth president of Lincoln University, Pa. Long Island University opened for the first time in September with George R. Hardie as president. The Rev. Robert M. Ekelly was appointed president of Loyola College. The Rev. Dr. Charles M. Jacobs was inaugurated president of Lutheran Theological Seminary at Mount Airy, Pa. Dr. George Herman Derry was appointed president of Mary Grove College. Dr. Spright Dowell was elected president of Mercer University at Macon, Georgia. Dr. Roscoe W. Thatcher was installed president of the Massachusetts Agricultural College. Miami University elected A. H. Upham president. Municipal University, Detroit, elected Augustus M. Bratton president. Edward M. Lewis was elected the new president of the University of New Hampshire. Everett C. Herrick was inaugurated president of the Newton Theological Institute. Arthur G. Crane was elected president of the University of Nebraska. Dr. Frederick B. Robinson was made president of the College of the City of New York. J. C. Brown accepted the presidency of Northern Illinois State College.

Dr. Ernest Hatch Wilkins was inaugurated as president of Oberlin College to succeed Dr. Henry Churchill King. Dr. Alvin F. Lewis was elected president of Ogden College, Bowling Green, Kentucky. Dr. Ralph D. Hetzel was inaugurated president of Pennsylvania State College W. M. Bratton was elected president of Rhinehart College. Dr. Hamilton Holt was made president of Rollins College, Florida. Dr. Alexander C. Robinson became president of the San Francisco Teachers' College. Dr. Ernest James Jaqua was made president of the new Scripps College for Women at Claremont, California. Miss Florence Read was elected president of Spelman College. Shreveport College elected William Garner Burgin as president. Dr. L. B. McMullen was appointed president of State Teachers' College at Billings, Montana. Dr. Harry Yandell Benedict became the new president of the University of Texas. Dr. John Finlayson of Wichita was made chancellor of the University of Tulsa. The Reverend Charles F. Dapp was called to the presidency of Wagner College, Staten Island. Dr. M. Lyle Spencer was elected president of the University of Washington. Dr. Harold Waldstein Foght was elected president of the University of Wichita. Dr. John Roscoe Turner was elected president of West Virginia University.

THE BROOKINGS INSTITUTION. This institution was established in Washington, D. C. Dr. Harold G. Moulton is its president. The board of trustees is composed of prominent men. This institution grew out of research conducted by the Institute of Economics, the Institute of Government Research, and the Robert Brookings Graduate School of Economics and Government. See BROOKINGS INSTITUTION.

CENTRES OF NEW YORK UNIVERSITY IN EUROPE. Seven centres of instruction were established in Europe by New York University for the benefit of summer students. Language, literature, commerce, or political science could be studied for four or eight points of college credit. The courses were given by American instructors in a European university. Four types of courses were planned for graduate, undergraduate, professional and cultural students.

The Curtis Institute of Music. Through the gift of Mrs. Mary Louise Curtis Bok the permanent endowment fund of this institution in Philadelphia was increased to $12,500,000. Josef Hofmann was the new director-in-chief and also continued in charge of the piano department. The sole requirement for admission is that the pupil show a native talent for music, a special aptitude for a certain instrument and certain characteristics that indicate probable success.

Huntington Foundation for Historical Research. A trust fund of $8,000,000 was left by Henry Edwards Huntington to be used exclusively for research in American and English history. The income from this fund is to be used to create fellowships for scholars engaged in historical research, for research by the staff of the Huntington Library and for publication of research findings. Mr. Huntington had previously turned over his famous building near Pasadena to the public and the great library has become a "free research laboratory for the advancement of learning." The building contains very valuable art and literary treasures.

The Junior Colleges. The junior college movement made rapid growth during the last five years. There were about one hundred public junior colleges, double the number reported in 1922, and the enrollments in these had increased 200 per cent. Private junior colleges and those on state foundations increased the number to well over three hundred.

New York Hospital and the Cornell University Medical College. This hospital and medical college planned to construct a large group of buildings, for a medical centre, near the East River, between Sixty-eighth and Seventieth Streets, New York City. This is near the Rockefeller Institute for Medical Research. It will be necessary to provide over $60,000,000 to carry out this plan. The General Education Board has given $7,500,000. The association will receive more than $10,000,000 by the will of the late Payne Whitney. Dr. George Canby Robinson, dean of the Vanderbilt University Medical School at Nashville, will be the executive director of the controlling organization, to be known as the New York-Cornell Medical College Association, which will operate under a joint administrative board of trustees.

Educational Boards and Foundations. *The American Scandinavian Foundation.* Scholarships to the amount of $70,000 were awarded to American and Scandinavian students by the American Scandinavian Foundation. Studies were pursued in Iceland and Greenland as well as Norway, Sweden and Denmark.

The Institute of International Education. The Institute of International Education reported a large increase in the number of fellowships that had been entrusted to the institute for administration. There were 145 of these which pay tuition, board and lodging, but not traveling expenses. The scholarships were almost equally divided between those for Americans to study abroad and for foreigners to study in the United States. This is an exchange, as the scholarships for Americans are provided in those countries and the scholarships for foreigners to study in the United States are provided from sources in America.

The Commission for Relief in Belgium Fellowships. During the fall of 1927, 33 Belgian advanced students were studying in American universities under the auspices of this commission and there were three American fellows doing advanced work in Belgium.

The Commonwealth Fund Fellowships. Commonwealth Fund Fellowships amounting to $125,000 were awarded to 23 honor graduates of British universities. These men will study for two years in American universities. This is the third group to study and travel in America under the Commonwealth Fund and makes a total of 63 who have held these scholarships. To the 20 annual fellowships three new ones have been added this year for honor graduates of British colonial universities at present studying in Great Britain.

International Study and Travel. Not less than six scholarships were arranged by the Travel and Study Committee of the American Council of Education. These were made possible through gifts of $1000 to $20,000 from Felix M. Warburg, Mrs. Andrew Carnegie, Mr. Hochschild and Aaron Naumburg. The general purpose in sending college juniors abroad to study is to stimulate broader education as well as acquaintance between American students and those in other countries. This plan has been in operation about four years and is reported as very satisfactory.

The Laura Spelman Rockefeller Foundation. The report of this Foundation for 1926 showed that appropriations to the amount of $6,879,384.50 were made. Of this amount $2,167,855.01 was payable in 1926. The income was $4,320,712.90. During the year $1,641,649.27 was appropriated to universities and other agencies both in the United States and abroad for study in social sciences. A total of $591,000 was appropriated for child study.

Survey of Land-Grant Colleges. The Bureau of Education and Interior Department were making a survey of land-grant colleges. This survey was authorized by Congress at its last session. The survey, being made of these colleges was a national study of the status, accomplishments and future objectives of the land-grant type of education. An advisory committee of nine was formed and consisted of the following members: The Secretary of the Interior, chairman; the Secretary of Agriculture, Thomas G. Blair, Superintendent of Public Instruction of Illinois, Miss Martha Van Rensselaer, director of the New York State College of Home Economics, Cornell, and the presidents of the following institutions—University of Maryland, the State Agricultural and Mechanical College, South Carolina, the University of Michigan, the Massachusetts Institute of Technology, and the State Agricultural College of Colorado.

UNIVERSITY EXTENSION. See Education.

UPPER AUSTRIA. A constituent province of the new republic of Austria since the formation of that state, Nov. 12, 1918; formerly a crownland of Austria, before the collapse of the Austro-Hungarian Empire. Area, 4626 square miles; population, according to the census of

923, 876,074. Capital, Linz, with a population of 102,081 in 1923.

UPPER SENEGAL AND NIGER. A colony under the government-general of French West Africa; officially known since Dec. 4, 1920, as French Sudan. See FRENCH SUDAN and FRENCH WEST AFRICA.

UPPER SILESIA. See POLAND.

UR. See ARCHÆOLOGY.

URUGUAY, ū′ru-gwā *or* o͞o′ro͞o-gwī. A republic of South America, bounded by Bolivia, Argentina, and Brazil. Capital, Montevideo.

AREA AND POPULATION. Area, 72,153 square miles; population, at the beginning of 1927, was ,720,468. The chief cities with their populations on Dec. 31, 1925, were Montevideo, 429,993. Paysandu, 24,000; Salto, 24,000; and Mercedes, 16,000. The movement of population in 1925 was: Births, 42,167; deaths, 19,332; marriages, 9363. The immigrants in 1925 numbered 147,305; the emigrants, 161,942. The immigrants came chiefly rom Spain, Italy, Brazil, France, Germany, Great Britain, and Argentina.

EDUCATION. During the year 1926, 1112 pubic primary schools were open throughout the Republic, with 3240 teachers, a total enrollment of 134,228 pupils, and an average daily attendance of 103,164. There were, in addition, 33 night schools for adults, with 308 special instructors and teachers, an enrollment of 7386 students, and an average attendance of 4911; two normal institutes, two schools for deaf-mute children, three open-air schools, one playground, 25 visiting teachers; also school clinics, etc.

PRODUCTION. Uruguay is primarily a pastoral country, 60 per cent of the total area being devoted to the stockraising industry, 20 per cent to mixed farms and ranches, and only 5 per cent to agriculture. Meat packing is the most important industry. Cattle to the number of 689,541, and 1,494,645 sheep were slaughtered in 1927. The total results of the 1926 wool clip were estimated at 117,000 bales. The chief agricultural products grown are wheat, maize, barley, oats, and linseed.

COMMERCE. The total value of Uruguayan foreign trade for the year 1927 was 180,678,065 pesos, of which the exports were 96,674,131 pesos and the imports, 84,003,934 pesos. Listed under general classes, the imports and exports of 1925 and 1926 were as follows:

Classes of commodities	*1925*	*1926*
Imports	*Pesos*	*Pesos*
Livestock	462,554	289,806
Raw materials	7,826,621	8,141,140
Foodstuffs	18,622,550	14,403,107
Cigars and tobacco	724,828	711,930
Hardware and paper	9,517,858	9,657,254
Farming implements	2,889,608	2,647,004
Dry goods and other merchandise	6,489,870	6,575,702
Musical instruments	71,200	88,800
Fuel	11,026,805	11,440,424
Tanned hides	54,077	61,689
Miscellaneous	19,753,697	19,255,124
Total	72,438,663	73,271,830
Exports		
Livestock products	87,754,624	86,302,946
Agricultural products	8,601,396	5,702,540
Mining products	1,524,116	2,258,925
Products of the hunt and fisheries	331,257	293,665
Miscellaneous articles	460,898	183,137
Ship provisions and supplies	36,724	32,204
Total	98,709,015	94,773,417

FINANCE. To stress the need of fiscal economies, Señor Sosa, of the Uruguayan National Administrative Council, declared toward the end of the year that the national wealth of Uruguay amounted to 3,300,000,000 pesos and the total national debt to 284,000,000 pesos, of which 64,000,000 pesos represented fiduciary currency in circulation. The country's national wealth he listed as follows:

	Millions of pesos
Urban, suburban, and rural property	1,850
Livestock (according to a special table of valuations)	346
Port works, roads, agricultural machinery, production, etc.	400
Railroads and tramways	80
Industrial domain of the State (capital of State-owned electric plants, capital of banks, etc.)	70
Working capital in commerce and industry	95
Gold in the Bank of the Republic	56
Government-owned property	103
Other items	300
Total	3,300

In the last 20 years the national debt has increased 100,000,000 pesos and the national budget of expenditures for 1927 reached 52,000,000 pesos, according to Mr. Sosa. Since 1902, he declared, budgetary expenditures have more than trebled.

COMMUNICATIONS. In 1925, 6639 steamers of 12,205,638 tons and 4731 sailing vessels of 1,023,261 tons entered the ports of Uruguay and 6565 steamers of 12,131,591 tons and 4803 sailing vessels of 1,034,749 tons cleared. There are 1585 miles of railways in the country.

GOVERNMENT. Under the constitution of Jan. 3, 1918, legislative power is vested in a parliament of two houses, the chamber of representatives elected by universal suffrage of males over 18 years of age, and the senate chosen by an electoral college which is elected by popular vote. Executive power is vested in the President, elected by direct popular vote, and a national administrative council of nine members. President in 1927, Dr. Juan Campisteguy, elected for the term Mar. 1, 1927–Feb. 28, 1931.

HISTORY. Dr. Campisteguy, successful in the elections of November, 1926, was inaugurated president of the republic on March 1 for a four-year term. The new president, a journalist by profession (the founder of the newspaper *El Día*), had seen considerable service in the government, at one time serving as secretary of the treasury and at another as minister of the interior. The following were chosen as Ministers in the Cabinet of Dr. Juan Campisteguy: Don Rufino T. Domínguez, Minister of Foreign Affairs; General Estanislao Mendoza y Durán, Minister of War and Marine; Dr. Eugenio J. Lagarmilla, Minister of the Interior; Dr. Pablo Minelli, Minister of the Treasury; Don Enrique Rodríguez Fabregat, Minister of Education; Dr. Eduardo Acevedo Álvarez, Minister of Industry; Victor Benavidez, Minister of Public Works.

UTAH. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 449,396. The estimated population on July 1, 1927, was 522,000. The capital is Salt Lake City.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	644,000	1,574,000[a]	14,311,000
	1926	637,000	1,818,000[a]	14,384,000
Wheat, winter	1927	152,000	2,888,000	2,946,000
	1926	149,000	3,129,000	3,348,000
Wheat, spring	1927	90,000	2,790,000	2,846,000
	1926	88,000	2,376,000	2,424,000
Potatoes	1927	22,000	2,970,000	2,228,000
	1926	17,000	2,465,000	2,588,000
Oats	1927	51,000	2,142,000	1,285,000
	1926	54,000	2,160,000	1,296,000
Barley	1927	30,000	1,410,000	1,072,000
	1926	20,000	800,000	576,000

[a] tons.

MINERAL PRODUCTION. Copper, lead and silver, the three leading mineral products, furnished three-fourths of the total production of the mineral industry of the State in 1925 as reckoned by value. Utah ranked first among the States in that year in production of silver, second as to lead, third as to copper. In 1926, it exceeded Montana in copper production and was surpassed only by Arizona. The metal production of the State was as follows: copper, 257,464,482 pounds in 1926, 236,486,450 pounds in 1925; lead, 205,270,025 pounds in 1926, 306,669,824 pounds in 1925; zinc, 95,179,380 pounds in 1926, 52,611,732 pounds in 1925; gold, 182,763 fine ounces in 1926, 177,803 fine ounces in 1925; silver, 19,358,581 fine ounces in 1926, 21,276,689 fine ounces in 1925. The aggregate value of production of these five metals for 1926 was $82,662,884; and $82,701,394 for 1925. Iron ore and pig iron were produced on a minor scale. Outside of the metals, coal was the chief element in the mineral industry. Coal production in 1926, as estimated from shipments, was 4,434,000 short tons in 1926; in 1925, 4,690,842 tons valued at $11,991,000. Considerable native asphalt, salt and arsenious oxide are produced. The total value of the State's mineral production in 1925, duplications eliminated, was $100,275,442; in 1924, $84,356,626.

The mines of Utah in 1927 produced gold, silver, copper, lead, and zinc valued at $74,348,000, a decrease of about $8,315,000 from the output of 1926, according to estimates of the U. S. Bureau of Mines. A large increase was reported in gold and slight ones in copper, lead, and zinc, but the output of silver was less than in 1926. The smelting plants of Murray, Midvale, Garfield, and International were active, and several new and important producing mines were added to the list for 1927. A marked decrease, however, in the average metal prices of silver, copper, lead, and zinc seriously affected many of the large operators. Utah was first in the United States in the production of silver, second in copper after Arizona, and second in lead after Missouri. The custom flotation mills at International, Midvale, and Bauer were operated the entire year, and improved milling plants were run at Park City and Bingham, but the Chief Consolidated flotation plant at Eureka was idle most of the year. The gold production increased considerably from a value of $3,778,046 in 1926 to about $3,986,300 in 1927. Practically all the gold was recovered from ores and concentrates smelted. The silver output decreased to 18,800,000 ounces in 1927, but the production was 7,700,000 ounces more than that of Montana, which was second in silver production in the United States. The value of the silver output decreased from $12,079,755 to $10,659,600, or nearly 12 per cent, due in part to the decrease in the average price. The production of copper increased to 258,300,000 pounds in 1927, but the value decreased from $36,045,027 to $33,579,000. The final figures may show some variation, possibly a slight decrease, but Utah was second in copper production after Arizona and was far above Montana in 1927. Lead output increased to 297,900,000 pounds in 1927, but the value decreased from $23,621,602 to $20,107,000 as the average price declined. The lead smelting plants were active, but not worked to capacity, although bullion shipments from International were increased. The zinc recovered chiefly from concentrate leached or smelted probably increased slightly to about 95,800,000 pounds in 1927. As the average price was much less than that of 1926, the value decreased from $7,138,454 to $6,016,240.

In 1927 the mines of Utah produced about 16,036,000 tons of ore, an increase from 15,856,144 tons in 1926. Of this total the Bingham district produced about 14,565,400 tons as compared with 14,521,472 tons in 1926. The estimated production of the district was 122,510 ounces of gold, 3,447,000 ounces of silver, 248,777,000 pounds of copper, 103,871,000 pounds of lead, and 48,290,000 pounds of zinc.

FINANCE. As reported by the U. S. Department of Commerce, payments for the maintenance and operation of general departments of the State government in the fiscal year ending June 30, 1926, were $7,430,514; their rate per capita was $14.60. They included $3,649,503 apportioned for education. Totals not included in the above, of $455,170 in interest and of $1,774,974 in permanent improvement outlay, brought the aggregate of State expenditure to $9,660,658. Of this, $2,235,392 was for highways; $660,912 being for maintenance and $1,574,480 for construction.

Revenue receipts were $11,055,923; or per capita, $21.72. Of the total, property and special taxes yielded 50.1 per cent, attaining a rate per capita of $10.87. Earnings of departments and compensation paid the State for officials' services furnished 6.4 per cent of revenue; 19.7 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from taxes on cigarettes and on gasoline.

Net State indebtedness on June 30, 1926, was $7,183,500, or $14.11 per capita. Property subject to ad valorem taxation bore a valuation of $668,611,580. State taxes levied thereon were $5,034,612, or $9.89 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 2,190.49. No additional trackage was built in 1927.

EDUCATION. Work was done to systematize and unify the courses in senior and junior high schools, and manuals on the organization and administration of such schools were published. There was active promotion of the view that tax laws should be altered to provide greater State aid for the school districts unable to meet the expenses of a minimum standard of school education. The school population of the State, according to figures rendered in 1927, was 143,811. There were enrolled in the public schools 141,483 pupils, of whom 114,309 were in the elementary schools and 27,174 in high schools. Expenditure for public education in the State was $11,076,674. Salaries of teachers averaged $1,280, those of principals and supervisors included.

Charities and Corrections. The State government had no single unit for the control of its welfare institutions or activities. The number of patients in the State hospitals for the insane on Jan. 1, 1927, according to the figures of the Department of Commerce, was 781, and there had been admitted to this hospital, in 1926, 173 cases not previously treated; in the State prison on Jan. 1, 1927, were 210 convicts, and the number of admittances in 1926 was 157.

Legislation. The Legislature convened in regular biennial session January 10. The State Senate voted against a bill to repeal the State's ratification of the seven-State compact for the disposal of water and power to be derived from the Colorado River.

Political and Other Events. Charges of shortage were made in August against the Treasurer of Salt Lake County, and certain of his deputies. The Utah State Farm Bureau with the aid of other groups in the State formed a commission to determine the facts bearing on the interest of the State in the development of the Colorado River water and power resources. This commission issued a statement on the subject, in October, which was adverse to the contention of Los Angeles, and which was vigorously controverted by the Los Angeles engineers.

Officers. Governor, George H. Dern; Secretary of State, H. E. Crockett; Treasurer, John Walker; Auditor, John F. Holden; Attorney-General, Harvey H. Cluff; Superintendent of Public Instruction, C. N. Jensen.

Judiciary. Supreme Court, Chief Justice, Samuel R. Thurman; Associate Justices, Elias Hansen, James W. Cherry, N. D. Straup, Valentine Gideon.

UTAH, University of. A State institution of higher education at Salt Lake City, founded in 1850. The total enrollment for the autumn of 1927 was 2754, and for the summer session of the same year, 913. The teaching faculty, exclusive of 11 on leave of absence studying at other institutions, numbered 158. The productive funds of the university amounted to $801,776, and the income for 1926–27 was $739,961.57. The library contained 90,164 volumes and 27,466 pamphlets. President, George Thomas, Ph.D.

VANADIUM. The U. S. Bureau of Mines estimated the world's production of vanadium contained in ore and concentrates in 1926 at 3,464,585 pounds, valued at $1,643,358, of which 661,360 pounds were produced in the United States and 2,497,000 pounds valued at $1,024,000 came from Peru and 50,625 pounds valued at $21,860 from Northern Rhodesia, while 255,600 pounds valued at $283,498 were exports from British Southwest Africa. The vanadium ores produced in the United States in 1926 were estimated at 43,200,000 pounds with an estimated vanadium content of 661,360 pounds value at $314,000, while the imports from Peru carried an estimated content of 1,831,600 pounds of vanadium, valued at $863,551; small quantities were also imported from Europe and British South Africa. In 1927 the United States imported 12,398,000 pounds of vanadium ores with an estimated value of $561,051, as against 14,942,000 pounds with a value of $914,114 imported in 1926.

VANDERBILT UNIVERSITY. A non-sectarian coeducational institution of higher learning at Nashville, Tenn.; founded in 1873. In the autumn term of 1927, 1249 students were enrolled, distributed as follows: graduate students, 102; college of arts and science, 675; school of engineering, 132; school of religion, 49; school of medicine, 189; school of law, 102, which was 32 less than the 1926 enrollment, due to the enforcement of higher admission requirements in 1927. No summer session was held. The faculty, exclusive of administrative officers, librarians, and assistants, numbered 165. Productive funds of the University amounted to $9,000,000, the annual income was about $800,000, and the value of the University's property was estimated at approximately $5,650,000. The library contained 126,000 volumes. Chancellor, James H. Kirkland, Ph.D., LL.D., D.C.L.

VAN DYCK, Francis Cuyler. An American educator, died at Highland Park, N. J., April 11. He was born at Coxsackie, N. Y., on June 3, 1844. After passing his freshman year at Williams College he graduated from Rutgers in 1865. A year after graduating he became instructor in physics at Rutgers, and remained continuously an active member of the faculty until his retirement in 1917 as a professor emeritus.

VARE, William S. See United States under *Seventieth Congress, First Session.*

VASSAR COLLEGE. A non-sectarian institution for the higher education of women at Poughkeepsie, N. Y.; founded in 1861. The enrollment for the autumn of 1927 was 1146. For the year 1927–28 the teaching staff had 151 members. The endowment, including fellowships and scholarships, amounted to $6,498,762.30, and the income for the year to $364,178.87. There were 155,800 volumes in the library. The outstanding achievement of the year in the academic life of the college was the adoption by the faculty of a new curriculum, which (1) diminishes, and limits ordinarily to the first year, the fixed requirements; (2) helps the student in her first years to find a purpose; (3) helps her to develop her field of major interest. President, Henry Noble MacCracken, Ph.D., L.H.D., LL.D.

VATICAN. See Roman Catholic Church.

VEGETABLES. See Horticulture.

VENEZUELA, vĕn′ē-zwē′lȧ, *Sp. pron.* vā′nā-thwā′lā or *Amer. Sp. pron.* vā′nā-swā′lȧ. A republic on the northern coast of South America, bordering on the Caribbean Sea and lying between Colombia on the west, Brazil on the south and British Guiana on the east. Capital, Carăcas.

Area and Population. Venezuela has an area of 393,874 square miles; population, according to the census of December, 1920, 2,411,952; estimated, Dec. 31, 1924, 2,563,334. An official census was taken early in 1926 but complete results were not published by the end of 1927. The population of Carăcas in 1920 was 92,212, and of other large cities: Maracaibo, 46,706; Valencia 29,466; Barquisimeto, 23,943; and San Cristóbal, 21,385. Because of the tremendous activity in the oil fields around Maracaibo, the population has grown by leaps and bounds, and was estimated at 100,000 in 1926. Official vita statistics for 1926 showed 17,334 marriages 91,648 births, 66,092 deaths, 21,672 immigrants and 16,552 emigrants.

Education. School registration in the variou types of schools was as follows in the month of December, 1926: Government primary schools, 63,747, and average attendance, 45,847; 341 private schools, 15,302; 236 municipal schools, 10,473; 254 state schools, 9726; special schools, 1618; secondary schools, 588; higher schools, 716.

PRODUCTION. Venezuela falls naturally into three zones, the agricultural, the pastoral, and the forest. In the agricultural zone are grown coffee, cacao, sugar-cane, cotton, beans, etc. The forests abound with tropical products such as caoutchouc, balata, vanilla, tonka beans, copaiba, etc. The area under coffee has been estimated at 180,000 to 200,000 acres, and the annual output of sugar at 60,000 tons. The country is rich in minerals, gold, silver, copper, coal, and salt being mined on a commercial scale. The country is also one of the richest oil countries in the world and promises to become one of the largest producers. The monthly production for 1927 averaged 4,517,367 barrels, with a total of 27,104,203 for the first six months. The production of Venezuela since the beginning of operations to July 1, 1927, totaled 102,360,872 barrels. More than 50 per cent of this total was produced in the eighteen months preceding mid-1927. These figures give an idea of oil-field development in the Maracaibo Lake Basin during the past two years.

COMMERCE. Foreign trade for 1926 included general imports valued at $70,027,000, and general exports of $75,364,000. These figures include reëxports, amounting roughly to about one per cent, and bullion and specie.

FINANCE. The total government receipts for the year 1926 were 172,444,968 bolivars, or an increase of 25,171,213 bolivars over those for 1925. The national debt of Venezuela as of Dec. 31, 1926, amounts to 85,108,452 bolivars, of which 36,239,441 bolivars represented internal debt and 48,869,011 bolivars foreign debt.

COMMUNICATIONS. There are approximately 740 miles of railroad, including the roads used in mining and on sugar plantations.

GOVERNMENT. According to the constitution of June 24, 1925, the executive power is vested in the president, who acts through a responsible ministry, and who is elected by congress for seven years; and the legislative power is vested in the congress, consisting of a senate and a chamber of deputies, the former of 40 members (two from each State) elected for three years, and the latter of one deputy for every 35,000 inhabitants and one more for an excess of 15,000, also elected for three years. President in 1927, General Juan Vicente Gomez (elected May 3, 1922, for the period 1922–1929).

VERMONT. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 352,428. No latter estimate had been prepared. The capital is Montpelier.

AGRICULTURE. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod., bu.*	*Value*
Hay	1927	985,000	1,421,000[a]	$16,581,000
	1926	989,000	1,475,000[a]	21,824,000
Corn	1927	84,000	3,276,000	3,440,000
	1926	84,000	3,612,000	3,481,000
Potatoes	1927	21,000	3,255,000	4,069,000
	1926	20,000	3,100,000	4,340,000
Oats	1927	88,000	3,287,000	2,104,000
	1926	82,000	3,116,000	1,870,000

[a] tons.

See AGRICULTURE; FLOODS.

MINERAL PRODUCTION. The total mineral production of the state in 1925, after elimination of duplications, was $14,408,933; in 1924, $14,549,429. Of this total the stone industry, particularly the quarrying of granite and marble, furnished the greater part, while slate provided most of the remainder. The production of stone was 283,030 short tons in 1925; in 1924, 295,880 tons. The value of the product was $8,958,846 for 1925 and for 1924, $9,066,073. Slate sold by producers had a total value of $4,267,041 for 1926 and for 1925 of $3,963,025. Lime and talc were both produced in the state in considerable quantities.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $4,642,510; their rate per capita was $13.17. They included $506,455 apportioned for education. Totals not included above, of $91,272 in interest and of $1,301,759 in permanent improvement outlays, brought the aggregate of State expenditure to $6,035,541. Of this, $2,664,806 was for highways; $1,513,140 being for maintenance and $1,151,666 for construction.

Revenue receipts were $6,384,992; or per capita, $18.12. Of their total, property and special taxes yielded 38.8 per cent, attaining the per capita rate of $7.03. Earnings of departments and compensation paid the State for officials' services furnished 7.1 per cent of revenue, while 40 3 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax, increased by the Legislature from 2 to 3 cents per gallon.

Net State indebtedness on June 30, 1926, was $1,753,532, or $4.98 per capita. Property subject to ad valorem taxation bore a valuation of $317,111,848. State taxes levied thereon were $1,591,935, or $4.52 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 1,056.82. No trackage was built in 1927.

EDUCATION. According to Commissioner of Education Dempsey, about one-third of the rural and village schools had been made to conform to the State standard by the end of the year. The number of standard normal school graduates among the teachers made a noteworthy increase. The school population of the State in 1927 was reckoned at 76,500. There were enrolled in the public schools in that year 64,030 pupils, of whom 52,166 were in the elementary schools and 11,864 in high schools. Expenditures for public school education in the State totaled $4,747,628.

CHARITIES AND CORRECTIONS. The State Department of Public Welfare, as operating in 1927, combined the functions of a board of charities and probation and of a department of institutions. It handled institutional work, child care, mothers' pensions, probation, parole, poor-house inspection and State aid to tuberculous, deaf and blind persons. It had under its control the State institutions. These and their populations were: Vermont State Hospital, Waterbury, 870; Vermont Industrial School, Vergennes, approximately 234; State School for the Feeble Minded, Brandon, 260; Vermont Sanatorium (for the indigent tuberculous), Pittsford, about 60; Women's Prison and House of Correction, Rutland, about 30; State Prison and House of Correction, Windsor, 340. Patients were also mainined at State expense in a hospital at Brattle-oro to the number of some 330. The Legislature uthorized a department survey of the blind the State. State patients suffering from ental disease numbered 835 on Jan. 1, 1927, ccording to figures of the U. S. Department of ommerce.

LEGISLATION. The Legislature convened in egular biennial session in January. It passed rovisions for the construction in the ensuing wo years of about 100 miles of State hard-urface road, thus taking an initial step in a olicy of improving the system of gravel roads, he State having built only some 20 miles of urface road. An act was passed to allow the nvestment of deposits of the State's savings anks in first mortgages on Vermont mines, uarries and timberlands, and Vermont indus-rial plants, and in bonds of towns, cities and chool districts, of over 5000 population, in seven dded States of the Union. To meet the need for he restoration of public improvements damaged r destroyed by the floods of the first week of ovember, the Legislature was summoned in spe-ial session by Governor Weeks. It convened No-ember 30, and passed a measure to authorize he issue of bonds to the total principal sum of 8,500,000, for the cost of restoring, at the sole xpense of the State, damaged highways and ridges. By the terms of the act, the cost of re-airs and replacements of highways and bridges amaged in the floods was placed on the State ven in cases where such cost would normally all on a municipality. The Legislature also authorized an Emergency Board to borrow up to $1,500,000 on the credit of the State in order to btain funds such as might be required for the relief of flood sufferers.

POLITICAL AND OTHER EVENTS. Governor John E. Weeks was inaugurated January 6. In his inaugural address he recommended among other things more district schools in rural sections of the State, the adoption of a definite plan of highway improvement, the reforestation of waste land, publicity for the attractions of the State and the development of its fish and game possibilities. Extraordinarily heavy rains brought down floods in the first week of November particularly in the Winooski River, which attained a reported height of 27 feet, or 14 feet in excess of the previous record, at the crest of the dam in Winooski Gorge. The loss of life in the Winooski Valley was 55 and elsewhere 29, making a total from all causes of 84 deaths; and 23 manufacturing plants reported on November 11 damages in excess of $2,800,000. Great damage was done to roads and bridges and the regular communications with some portions of the State were cut off for a number of days. A 460-foot steel bridge on the Rutland Railroad route from New York to Montreal, crossing the Winooski, was swept away, and was replaced with a temporary structure two weeks later. Lieutenant Governor S. Hollister Jackson lost his life in the floods. A severe financial sufferer, the Central Vermont Railroad was thrown into receivership December 12, by action of the Canadian National Railways, the controlling company. Damage done y the flood within the territory of the State, ccording to report of an estimate submitted to President Coolidge on behalf of Governor Weeks, eached the total of $30,000,000. See FLOODS.

OFFICERS. Governor, John E. Weeks; Lieutenant Governor, S. Hollister Jackson (died November, 1927); Secretary of State, Rawson C. Myrick; Treasurer, Thomas H. Cave; Auditor, Benjamin Gates; Attorney General, J. Ward Carver; Commissioner of Education, C. H. Dempsey.

JUDICIARY. Supreme Court: Chief Justice, John H. Watson; Associate Justices, George M. Powers, Leighton P. Slack, Sherman R. Moulton and Harrie B. Chase (appointed September, 1927, to succeed Frank L. Fish, deceased).

VERMONT, UNIVERSITY OF. An endowed institution of higher education at Burlington, Vt., receiving some State aid; founded by Ira Allen in 1791. The 1927 autumn enrollment was 1360, of whom 745 were men and 615 women. This number was distributed as follows: arts and sciences, 819; medicine, 130; engineering 152; agriculture, 120; graduate students, 10; two-year State teacher-training course, 129. There were 150 members on the faculty. The endowment amounted to approximately $2,000,000 and the income for the year to $850,000. The library contained 125,000 volumes. President, Guy W. Bailey, LL.D.

VERMONT SESQUI-CENTENNIAL. See CELEBRATIONS.

VESSELS, NAVAL. See NAVAL PROGRESS.

VETERANS' BUREAU. See UNITED STATES.

VETERINARY MEDICINE. The year 1927 saw no new serious foreign livestock malady gaining entrance into the United States as in the few years preceding, and was marked by the betterment of the livestock industry through disease control, and particularly through the eradication of tuberculosis.

LIVESTOCK TUBERCULOSIS ERADICATION. Excellent progress was made in the coöperative campaign to eradicate tuberculosis from the domestic livestock. The support given to it included an increase of nearly $1,000,000 in the Federal appropriation for the work, or a total of nearly $6,000,000. This was supplemented by combined State appropriations of about thirteen million dollars. As a result of the work conducted, by November, 144,809 herds with 1,997,517 head had been accredited as tuberculosis free; there were 2,014,940 herds with 18,975,510 head under supervision, and 398,047 herds with 4,166,738 head on the waiting list. At that time there were 418 modified accredited counties. The work suffered a serious loss in the death of Dr. J. A. Kiernan on December 13, at the age of 54 years, who had been in charge from the beginning, in 1917.

HOG CHOLERA CONTROL. The unusual prevalence of hog cholera during the fall and winter of 1926–27 resulted in an output of anti-hog-cholera serum considerably exceeding a billion cubic centimeters, or more than twice that of the preceding year and fifty per cent. more than in any previous year. The field control of outbreaks demonstrated the effectiveness of the preventive-serum treatment and also the need for placing primary reliance on this method of preventing heavy losses.

CATTLE TICK ERADICATION. The cloud of misfortune that visited tick-infested areas in the Mississippi valley in the great overflow had a silver lining in it in that it forced the removal of all cattle, while the submergence and burial under a deposit of silt destroyed the ticks. This was to be taken advantage of by restocking the flooded areas with tick-free cattle. The work resulted in a steady progress in eradication, twelve entire counties and five parts of counties having been released as tick-free. It was necessary, however, to requarantine one parish and one county and parts of two parishes. The principal progress was made in Texas, Arkansas, Florida, and Virginia. A total of 737 counties had been released up to July 1 as tick-free, leaving 248 still under quarantine.

Dourine Eradication. Good progress was made in dourine eradication work conducted in cooperation with State livestock officials and the Office of Indian Affairs. In Montana a few cases were detected in a small centre of infection discovered the preceding year. Adequate funds permitted extensive testing on the Navajo Indian Reservation in Arizona where dourine has existed rather extensively among Indian horses. Of the 9364 animals whose blood was tested 703 were found infected.

Scabies Eradication. In the eradication work with sheep scabies conducted in coöperation with the State officials 530,842 sheep were found infected and were dipped, or 45 per cent less than in the preceding year. Increased infection was reported only in Colorado, Nebraska, and Utah. In the cattle scabies eradication work 136,448 head were found to be infected, a considerable reduction from the preceding year. The disease was somewhat more prevalent in Oklahoma, Texas, and Washington.

Infectious Abortion of Livestock. This disease continued to hold first place in the investigation of livestock diseases. Immunity work with the live virus was carried on in several States, the results obtained lending some encouragement to continue. The regular use in the fall of a bacterin prevented abortion in mares in control work in Kentucky. In studies in Arkansas the abortion organism failed to produce aggressins. An accurate rapid method for performing the agglutination test for the infection was perfected in Michigan. Studies of the tenacity of the organism in Washington demonstrated a resistance to temperatures from below freezing to 80° F. for as long as 87 days. Herds in a number of States were successfully freed from the disease by isolation of the reactors to the agglutination test, and sanitation. This was accomplished in Georgia in less than two years without selling the reactors, from a beef herd in Colorado in 10.5 months, and from a dairy herd in 18.5 months. In Connecticut the disease was eliminated from 15 of 40 herds averaging 30 head in about two years. Experimental work with a clean and an infected herd in Minnesota kept in barns 75 feet apart and tended by the same man indicated that it is feasible for a breeder to maintain a clean and an infected herd.

That the organism occurring in milk from infected cows may at times be the cause of an undulant fever in man was evidenced by the increasing number of cases reported during the year.

Foot-and-Mouth Disease. There was no outbreak of this disease in the United States during the year, the last known diseased herd in the outbreak in Texas having been destroyed on Oct. 15, 1925. New centres of infection continued to be discovered in Great Britain, where up to December 64 outbreaks had been confirmed involving 16 counties and the slaughter of 1981 cattle, 1884 sheep, 1172 pigs, and two goats.

Roup, Pox, and Diphtheria of Poultry. An active pox virus used on the range in Oregon to immunize chickens was found to control the disease satisfactorily in the laying house. Fowls vaccinated with the active virus when four months of age were immune to experimental inoculation nearly eleven months later. The use of autogenous bacterins for fowl pox in Massachusetts when administered in the early stages of the disease caused a general improvement in the health of the birds. Several reports were made abroad of the successful protection of poultry against pox by the use of "anti-diphtherin," a commercial virus prepared in Holland. Pandit in India reported finding the virus of contagious epithelioma of fowls when passed in succession on calves and monkeys to be cultivated ultimately into vaccinia virus.

Bacillary White Diarrhœa of the Fowl. Investigation on bacillary white diarrhœa continued to hold first place in the field of avian pathology, evidencing the great importance of the disease to the poultry industry. A rapid method was perfected in Virginia for making the agglutination test for detection of the infection. It was found in North Carolina that the serum from reacting birds can be kept frozen for more than seven months and fully retain its power of agglutination. A method of eliminating the cloudy reaction, perfected in Michigan, consists in the use of an antigen containing 1 cc. of normal sodium hydrate to 100 cc. of antigen. Studies in Rhode Island led to the conclusion that high temperatures are unfavorable for gas production by the causative organism, and that the lack of gas formation is a result of such inhibition. It was found in Pennsylvania that strains of the organism having a high negative electrical charge were agglutinated with difficulty while those carrying a low charge were agglutinated with ease. The use in the antigen of 0.1 per cent formalin as a preservative was found in California to eliminate the cloudy reactions which occurred when the phenolized antigen was used. It was found in Virginia that the agglutination reaction following vaccination for fowl typhoid is transitory. Investigators in North Carolina and California found that infected hens may react intermittently and lay infected eggs, probably never recovering from the disease. The percentage of infected eggs laid by reacting hens was 7.31 in heavy breeds and 5.23 in Leghorns, the percentage of egg infection rising as production increased.

The work of the year indicated that the intradermal or pullorin test was becoming sufficiently perfected to be useful in the detection of infected birds. Negative control birds placed with reactors in North Carolina failed to become infected within a period of 15 months, as determined by the agglutination test. It was found by Bunyea that the infection in adult hens and pullets may assume the character of a bacteremia with primary lesions of peritonitis and a salpingitis. It was estimated in Kansas that the average fertility for nonreactors is 90 per cent and for reactors 70 per cent, the hatchability of fertile eggs for nonreactors 70 per cent and for reactors 58 per cent, the livability of chicks from nonreactors 90 per cent and for reactors 50 per cent. The chances of transmission of the infection from adult to adult was found in North Carolina to be remote if the ground had not been previously occupied by infected chicks. The ingestion of feed containing droppings of infected hens by day-old chicks failed to transmit the disease to them in Indiana. Doyle in England was led to conclude that adult cock birds do not readily contract the disease from contact with infected hens. Trap-nest records kept in North Carolina led to the conclusion that the keeping of heavily infected birds is not economical.

Fowl Typhoid. The work of the year further demonstrated the close relationship of the fowl typhoid organism and the bacillary white diarrhœa organism, both biochemically and pathologically, and suggested that the latter may be the former in the making. Studies in California showed that the fowl typhoid organism like that of bacillary white diarrhœa may be transmitted directly to chicks through eggs laid by infected hens. It was found that both acute infection of chicks and chronic infection of the ovary of the hen are caused by the fowl typhoid organism. The degree of acidity of the soil was found in New Jersey to be an important factor in the destruction of this organism.

Parasites and Parasiticides. In studies carried on in Wales it was found that starlings were more important distributors of gapeworms of poultry than were turkeys, and that other wild birds played a similar part. The coccidium affecting turkeys was found by Tyzzer to represent a form distant from the two attacking the chicken, he gave the name *Eimeria meleagridis* to the former. The same investigator found the parasite causing blackhead in turkeys to occur in and be transmitted by the eggs of the cecum worm. Tetrachlorethylene was found by Hanson to be as effective in the removal of hookworms and ascarids in foxes as is carbon tetrachloride. The infestation of lambs with stomach worms was found in Ohio to be reduced 99.6 per cent by the administration of copper sulphate solution at regular monthly intervals. In Illinois, at Chicago, eggs of the cecum worm of poultry were in normal condition after burial for 8 months just beneath the surface of the soil. Eggs of the roundworm of swine survived exposure to outdoor conditions with temperatures varying from -16 to 94° F. for more than 301 days, and a few showed live embryos at the end of a year.

Bibliography. Books of the year include: K. Glässer, *Die Krankheiten des Schweines* (Hanover, 1927, 3. ed. [rev. and enl.]); J. Hammond, *The Physiology of Reproduction in the Cow* (London, 1927); A. Honeker and J. Fortner, *Die Bösartige Maul- und Klauenseuche bei Ziegen* (Hanover, 1927); B. F. Kaupp, *Poultry Diseases, Including Diseases of Other Domesticated Birds, with a Chapter on the Anatomy of the Fowl* (Chicago, 1927, 4th ed. [rev. and enl.]); R. A. Kelser, *Manual of Veterinary Bacteriology* (Baltimore, 1927); G. Marotel, *Parasitologie Vétérinaire* (Paris, 1927); F. Smith, *A History of the Royal Army Veterinary Corps, 1796–1919* (London, 1927); E. Weber, *Die Krankheiten des Rindes* (Berlin, 1927).

VICTORIA. A state of the Australian Commonwealth, situated in the southeastern part of the island continent. Area, 87,884 square miles; population, according to the census of 1921, 1,531,280; estimated June 30, 1927, 1,721,093. Capital, Melbourne, with an estimated population, including suburbs, on Dec. 31, 1925, of 912,130. The other large cities, with their populations on that date, were Ballarat, 40,090; Geelong, 39,100; Bendigo, 33,700. The movement of population in 1925 was: Births, 35,922; deaths, 15,837; marriages, 13,370; immigration (by sea), 77,487; emigration (by sea), 64,276.

Education is compulsory for children between the ages of six and 14. In 1924 there were 2503 government schools, with 6977 teachers, a total enrollment of 254,144 pupils, and an average daily attendance of 171,382. The area and yield of the principal crops in 1926 were: Wheat, 2,513,000 acres, 29,256,000 bushels; oats, 438,000 acres, 4,998,000 bushels; barley, 103,000 acres, 1,775,000 bushels; potatoes, 63,000 acres, 161,000 tons; hay, 1,014,000 acres, 929,000 tons; vines, 41,252 acres, 1,368,765 gallons of wine. The wool industry is of great importance. At the end of March, 1926, there were 13,740,000 sheep, and the value of the wool clip in the preceding year was £11,444,240, for 106,787,897 pounds The mineral resources are abundant, especially coal and gold ores. The output of the former in 1925 was 534,246 tons, valued at £596,117; of the latter, 47,296 fine ounces, valued at £200,958. The value of the total quantity of gold obtained from 1851 to 1925 was estimated at £302,339,954.

The number of factories in the state increased at the rate of approximately 2000 a year up to 1924–25, when the total reached 7425. At the end of 1925–26 only 7461 were reported, an increase of only 36 during the 12 months. The number of employees decreased from 154,158 on June 30, 1925, to 152,927 on June 30, 1926, and the capital value of land, machinery, and buildings declined from £61,031,975 to £60,395,500. Working costs were higher. The value of production rose from £118,177,398 to £119,986,439. Establishments manufacturing food and drinks reported an output valued at £36,464,761, and next in importance came clothing and textiles industries, £25,312,669, while the metal industry was £15,569,040. During recent years much progress has been made in the use of up-to-date machinery.

In 1925–26 the total value of overseas imports was £50,319,324; of overseas exports, £32,957,263. State revenues in 1925–26 amounted to £23,820,402, a decrease of £171,006 as compared with 1924–25. Victoria has a debt, incurred in the construction of public works, which amounted, on June 30, 1925, to £131,169,565. The total railway mileage in 1925–26 was 4888 as compared with 4807 in 1924–25.

The executive power is vested in a governor, acting through a responsible ministry, and the legislative power in a parliament of two houses; namely, the legislative council of 34 members elected for six years and subject to property qualifications, and a legislative assembly of 65 members elected for three years (unless sooner dissolved) by universal male and female suffrage. The governor in 1927 was Lieut. Col. Lord Arthur H. T. Somers; Premier, Minister of Water Supply, and Minister of Railways, J. Allan.

As a result of the elections of April 16, Premier Allan, the Country-Nationalist leader, resigned and was succeeded by E. J. Hogan, the leader of the Labor opposition. Mr. Hogan was compelled to depend on non-labor votes for his majority inasmuch as there were only 28 Labor members in a house of 65.

VIERA, Feliciano. Ex-president of Uruguay, died at Montevideo on November 11. He was born in Salto in 1872, and received his education at the University of Montevideo. In 1911 he was appointed Minister of the Interior, at that time the most important position in the administration. He held the post until 1915 when the General Assembly appointed him president of the Republic. While he was president the public peace was never disturbed, notwithstanding many serious and complicated problems that presented themselves to him for solution. In 1919 he transmitted the presidential office to his successor and assumed the post of president of committee in the National Council.

VILLAGE LAW OF NEW YORK STATE. See Municipal Government.

VIOLINISTS. See Music.

VIRGINIA. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,309,187. The estimated population on July 1, 1927, was 2,546,000. The capital is Richmond.

Agriculture. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod., bu.*	*Value*
Corn	1927	1,626,000	47,967,000	$44,130,000
	1926	1,694,000	46,585,000	39,597,000
Tobacco	1927	178,000	129,940,000 [a]	25,033,000
	1926	189,000	137,032,000 [a]	24,118,000
Hay	1927	1,100,000	1,498,000 [b]	23,881,000
	1926	1,005,000	1,018,000 [b]	19,734,000
Potatoes	1927	130,000	19,760,000	25,688,000
	1926	124,000	11,656,000	16,318,000
Sweet potatoes	1927	43,000	5,805,000	4,934,000
	1926	43,000	5,375,000	5,375,000
Wheat, winter	1927	687,000	8,381,000	11,063,000
	1926	687,000	11,336,000	14,850,000
Cotton	1927	67,000	32,000 [c]	3,200,000
	1926	93,000	51,000 [c]	2,907,000
Peanuts	1927	152,000	123,120,000 [a]	5,540,000
	1926	138,000	136,620,000 [a]	5,875,000
Oats	1927	186,000	3,999,000	2,559,000
	1926	186,000	5,836,000	3,047,000
Apples	1927		6,000,000	8,100,000
	1926		19,902,000	10,450,000

[a] pounds, [b] tons, [c] bales.

Mineral Production. Coal, which furnished more than half of the total value of the mineral output of 1925, was mined more actively in 1926. Coal production in 1926 was 14,133,386 net tons; in 1925, 12,799,443 tons. Coal mined had a value for 1926 of $27,203,000; for 1925, of $23,496,000. Coal mining in 1926 was carried on at 109 mines of commercial size, situated in eight counties. Clay products, second in importance to coal, attained in 1925, the latest year of available reports, a value of $3,909,634; in 1924, of $4,288,640. Coke production was, from beehive ovens, in 1925, 421,691 short tons, and in 1924, 485,064 short tons; in value, $1,901,623 in 1925 and in 1924, $2,343,081. There were produced in 1926, 105,019 long tons of pig iron, as against 97,884 tons in 1925; in value, $2,322,451 in 1926, and in 1925, $2,237,749. Much stone, lime, sand, and gravel were also produced. The total value of the State's mineral production in 1925, duplications eliminated, was $41,038,393; in 1924, $37,962,143.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $21,473,419; their rate per capita was $8.58. They included $5,608,938 apportioned for education. Totals not included in the above, of $783,245 in interest and of $9,928,964 in permanent improvement outlays, brought the aggregate of State expenditure to $32,185,628. Of this, $12,269,650 was for highways; $3,428,206 being for maintenance and $8,841,444 for construction. Interdepartmental items formed $464,127 of total expenditure.

Revenue receipts were $33,763,842; or per capita, $13.49. Of their total, property and special taxes yielded 32.9 per cent, attaining a per capita rate of $4.44. Earnings of departments and compensation paid the State for officials' services furnished 10.1 per cent of revenue; 39.8 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $25,204,197, or $10.07 per capita. Property subject to ad valorem taxation bore a valuation of $2,182,142,063. State taxes levied thereon were $8,437,046, or $3.37 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 4,547.59. No additional mileage was reported to have been built in 1927.

Education. Among the rural schools, 40 per cent of the pupils were reported to have attended school for a year's term of nine months. A special commission of educators appointed by the Governor and headed by Dr. M. V. O'Shea of the University of Wisconsin began a survey of the educational system in October. The school population of the State, as based on a school census of 1925, was 701,534. There were enrolled in the public schools in the school year 1926–27, 549,317 pupils. Of these 396,786 were in the elementary grades, and 152,531 in high school. The expenditure for public school education was $23,571,000. Salaries of teachers in the schools averaged $797. Elementary schools meeting all requirements of the State Board of Education in regard to standardization in the school year 1926–27 numbered 916.

Charities and Corrections. The State Board of Public Welfare has control or supervision over State and county charitable and penal institutions. It is engaged in the work of replacing county almshouses with district institutions, each serving a number of counties. Industries and farming are carried on at the State Penitentiary, and a large number of convicts have been used in State road building. The prisoners in custody of the State Penitentiary on Jan. 1, 1927, numbered 1979, according to statistics furnished by the U. S. Department of Commerce; 844 were admitted in 1926.

Legislation. The General Assembly convened in extraordinary session March 16, to consider recommendations of governmental reform in the interest of economy and efficiency, and adjourned April 9. It passed a bill proposing a revision of the State constitution, subject to the bill's repassage by the Legislature in 1928 and a ratifying vote by the electorate in November of that year. The bill in the main followed the recommendations of the Prentis commission which had studied the subject. Efforts on the part of Republican leaders to have provision made for more liberal voting qualifications, likely to prove favorable to the negro vote, were not successful. A poll tax exemption in particular was defeated. In all more than

80 changes in the constitution were proposed in the bill as passed. Republican representation on election boards, under the amended constitution, was to be permitted, and the General Assembly was to have the power to fix by statute property qualifications for voting. There was passed also a measure providing for an educational survey of the State. A bill to increase the State gasoline tax failed of passage.

POLITICAL AND OTHER EVENTS. The Director of Taxation carried on during the year an effort to increase the number of payers of State income tax. Returns were obtained from some 64,000 individuals and corporations, as against 40,000 in the year previous. The United States Supreme Court reviewed the case of Carrie Buck, a feeble-minded Virginia woman who, the State authorities had ordered, should be subjected to an operation to render her sterile. The court approved the order and upheld the State sterilization law as constitutional. A monument was erected at Timber Ridge, to the memory of General Sam Houston. State Attorney General Saunders ruled July 2 that women could not serve on juries.

OFFICERS. Governor, Harry F. Byrd; Lieutenant Governor, Junius E. West; Secretary of the Commonwealth, M. A. Hutchinson; State Treasurer, John M. Purcell; Auditor of Public Accounts, C. Lee Moore; Attorney General, John R. Saunders; Superintendent of Public Instruction, Harris Hart; Commissioner of Agriculture, George W. Koiner.

JUDICIARY. Supreme Court of Appeals: President, Robert R. Prentis; Associate Justices, J. F. West, Martin P. Burks, Preston W. Campbell, R. H. L. Chichester.

VIRGINIA, UNIVERSITY OF. A non-sectarian institution of higher education at Charlottesville, Va.; founded in 1819. The enrollment for the autumn term of 1927 was 2146, distributed as follows: College, 1239; education, 94; graduate students, 142; engineering, 149; law, 274; medicine, 248. For the 1927 summer session the registration totaled 2771. The faculty numbered 272, of whom 150 were above the rank of instructors, 15 professors having been added during the year. The endowment funds of the university amounted to $4,016,175, and the annual income of $1,349,000 was derived from the following sources: Endowment, $199,181; from State appropriations, $384,690; from fees, $404,600; from miscellaneous sources, $360,529. There were approximately 140,000 volumes in the library. President Edwin Anderson Alderman, D.C.L., LL.D.

VIRGIN ISLANDS. The name given by the United States government to the former Danish West Indies, purchased by the American government from Denmark by the treaty proclaimed Jan. 25, 1917; also a group of islands belonging to the British colony of the Leeward Islands (q.v.). The Virgin Islands of the United States consist chiefly of the Islands of St. Thomas, St. Croix, and St. John, and have a total area of about 132 square miles, with a population, according to the census of Nov. 1, 1917, of 26,051, of whom 80 per cent were negroes, 13 per cent of mixed races, and 7 per cent whites. St. Thomas, with an area of 28 square miles, had 10,191 inhabitants; St. Croix, 84 square miles, 14,901 inhabitants; and St. John, 20 square miles, 959 inhabitants. St. Thomas, the chief port, has coaling and oil fueling stations. Education is compulsory. For the fiscal year 1925–26, the trade of the islands was: Imports, $2,531,404, exports, $1,119,706. Governor in 1927, Capt. Martin E. Trench, U.S.N.

VITAL STATISTICS. In the YEAR BOOK for 1925 appeared the total deaths and death rates of the so-called registration area of the United States for 1923 and 1924, and on Dec. 30, 1927, were released to the general public the corresponding statistics for 1925 and 1926. In this report issued by the U. S. Department of Commerce it was stated that 1,285,927 deaths occurred in 1926 within the death registration area of continental United States, representing a death rate of 12.2 per 1000 population, a slight increase over the rate for 1925. This area in 1926 comprised 41 States, the District of Columbia, and 25 cities in nonregistration States, with a total estimated population on July 1, 1926, of 105,170,000, or 89.8 per cent of the estimated population of the United States.

The principal increases in death rates in 1926 were from diseases of the heart, from 186 to 199 per 100,000 population, influenza, from 30 to 41, pneumonia (all forms), from 94 to 103, measles from 2 to 8, and whooping cough, from 7 to 9. Decreases in rates in 1926 were from diarrhœa and enteritis, under 2 years, from 32 to 27 per 100,000 population, and typhoid and paratyphoid fever, from 8 to 7.

The accompanying table, on page 803, shows for the death registration area in continental United States in 1925 and 1926 the number of deaths and the death rates per 100,000 population from leading causes.

VITAMINS. The number of these substances by 1927 had become increased to five, known as A, B, C, D, and E. The first three had been known for many years, while vitamin D is of much more recent origin and discovered in connection with the causation and cure of rickets (q.v.). The new accession differs from the preceding in that deprivation of it does not result in a deficiency disease but in sterility. Up to 1927 only small prolific animals (rats) had been subjected to experimental study. While the sterile female rat may be cured by the use of food extracts containing the new vitamin the male may be actually rendered sterile by withholding all foods containing it and then cured by proper feeding. Male sterility moreover is followed by atrophic changes in the genital glands, with loss of the epithelial lining of the seminiferous tubules. Substances rich in vitamin E comprise lettuce and in a less degree milk fat and beef muscle. Peculiarly rich in it is wheat germ in the form of an oil extracted by ether. This substance contains vitamins A, B, D, and E and when mixed with orange juice, which is rich in vitamin C, the mixture presents all five of the vitamins. Still another vitamin, known for the time being as vitamin PP, and regarded as a preventive of pellagra, (q.v.) is mentioned in the article on that disease, the best food vehicle for this substance being dried killed yeast. See ANÆMIA, PERNICIOUS; FOOD AND NUTRITION; RICKETS.

VOCALISTS. See MUSIC.

VOGELGESANG, CARL THEODORE. An American naval officer, died in Washington, D. C., February 16. He was born at North Branch, Cal., Jan. 11, 1869. After graduating from the United States Naval Academy at Annapolis in 1890 he was commissioned as an ensign and

Cause of death	*Deaths in the registration area in continental United States*			
	Number		*Rate per 100,000 estimated population*	
	1926	*1925*	*1926*	*1925*
All causes [a]	1,285,927	1,219,019	1,222.7	1,182.3
Typhoid and paratyphoid fever	6,826	8,287	6.5	8.0
Malaria	2,006	2,132	1.9	2.1
Smallpox	377	709	0.4	0.7
Measles	8,607	2,404	8.2	2.3
Scarlet fever	2,662	2,762	2.5	2.7
Whooping cough	9,317	6,948	8.9	6.7
Diphtheria	7,856	8,058	7.5	7.8
Influenza	42,809	30,538	40.7	29.6
Dysentery	2,921	3,257	2.8	3 2
Erysipelas	2,680	2,455	2 5	2.4
Lethargic encephalitis	1,499	1,630	1.4	1.6
Meningococcus meningitis	1,413	1,095	1.3	1.1
Tuberculosis (all forms)	91,568	89,268	87 1	86.6
Of the respiratory system	80,375	78,103	76.4	75 7
Of the meninges, central nervous system	3,788	3,746	3.6	3.6
Other forms	7,405	7,419	7.0	7 3
Syphilis [b]	16,466	16,332	15.7	15.8
Cancer and other malignant tumors	99,833	95,504	94.9	92.6
Rheumatism	4,219	4,093	4.0	4.0
Pellagra	3,854	3,344	3.7	3.2
Diabetes mellitus	18,881	17,385	18.0	16 9
Meningitis (nonepidemic)	3,219	3,415	3.1	3.3
Cerebral hemorrhage and softening	90,832	87,064	86.4	84 4
Paralysis without specified cause	5,732	5,920	5.5	5.7
Diseases of the heart	209,370	191,226	199.1	185.5
Diseases of the arteries, atheroma, aneurysm, etc.	23,698	23,090	22.5	22.4
Bronchitis	6,961	6,670	6 6	6.5
Pneumonia (all forms)	107,797	96,432	102.5	93.5
Respiratory diseases other than bronchitis and pneumonia (all forms)	9,202	8,875	8.7	8.6
Diarrhea and enteritis (total)	35,296	40,512	33 6	39.3
Diarrhea and enteritis (under 2 years)	28,374	32,450	27.0	31.5
Diarrhea and enteritis (2 years and over)	6,922	8,062	6.6	7.8
Appendicitis and typhlitis	15,751	15,618	15.0	15 1
Hernia, intestinal obstruction	11,734	11,168	11 2	10.8
Cirrhosis of the liver	7,591	7,549	7.2	7.3
Nephritis	103,332	99,320	98.3	96 3
Puerperal septicemia	5,518	5,697	5.2	5.5
Puerperal causes other than puerperal septicemia	9,540	9,618	9.1	9.3
Congenital malformations and diseases of early infancy	75,239	76,158	71.5	73.9
Suicide	13,410	12,495	12.8	12.1
Homicide	9,210	8,898	8.8	8.6
Accidental and unspecified external causes (total)	82,715	80,774	78.6	78.3
Burns (conflagration excepted)	6,487	6,375	6.2	6.2
Accidental drowning	6,661	6,456	6.3	6.3
Accidental shooting	2,593	2,570	2.5	2.5
Accidental falls	14,681	13,864	14.0	13.4
Mine accidents	2,825	2,648	2.7	2.6
Machinery accidents	2,224	2,339	2.1	2.3
Railroad accidents	7,026	6,778	6.7	6.6
Collision with automobile	1,556	1,266	1.5	1.2
Other railroad accidents	5,470	5,512	5.2	5.3
Street-car accidents	1,621	1,630	1.5	1.6
Collision with automobile	464	498	0.4	0.5
Other street-car accidents	1,157	1,132	1.1	1.1
Automobile accidents (excluding collision with railroad and street cars)	18,871	17,571	17.9	17.0
Injuries by vehicles other than railroad cars, street cars, and automobiles [c]	1,507	1,718	1.4	1.7
Excessive heat (burns excepted)	646	1,355	0.6	1.3
Other external causes	17,573	17,475	16.7	16.9
All other defined causes	117,278	114,419	111.5	111.0
Unknown or ill-defined causes	18,708	17,905	17.8	17.4

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[a] Exclusive of stillbirths.

[b] Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.

[c] Includes airplane, balloon, and motorcycle accidents.

served through the various grades until he became rear admiral in 1922. He was on the *Bancroft* in the Spanish American War and later was on duty at the Naval War College in addition to sea service. He was commandant of the New York Navy Yard and the Third Naval District from July 1921 until November 1922, when he was appointed chief of the United States Naval Mission to Brazil. He spent two years in Brazil reorganizing the Brazilian navy with the assistance of a staff of sailors and officers of the United States Navy.

VOLHYNIA, vŏl-ĭn'ĭ-ȧ. A part of the Soviet Republic of Ukraine (q.v.); formerly a part of the Russian Empire; lying east of Poland, and Galicia in West Russia. Area, 27,699 square miles; population, Jan. 1, 1915, 4,241,800. Capital, Zhitomir, with an estimated population before the War of 96,800.

VOLUNTEERS OF AMERICA. A nonsectarian philanthropic organization founded by General and Mrs. Ballington Booth, in March, 1896. Operations were begun without funds, but with many friends, with central offices in the Bible House, New York City. The society was incorporated on Nov. 8, 1896, under the laws of the State of New York. The society works in harmony with the evangelical churches. No pledge of life membership is required of its members; it promotes its officers on a merit system; its funds are audited at stated periods and balance sheets are issued. The society has

60 homes or institutions throughout the United States. There are summer camps to the number of 14, and the society owns the property and equipment of most of these. The winter activities of the society embrace all branches of relief work in a number of cities, in conjunction with the gospel mission work. The following record gives some idea of the work accomplished during 1926. There were 133 stations, of which 127 were in urban communities and six in rural areas, with a total membership of 28,756; there were Sunday schools in connection with 80 stations, reporting 9942 scholars. The total expenditures for 102 stations amounted to $728,612, including $321,754 for current expenses and improvements, $215,003 for benevolences, etc., and $191,855 not classified.

VOORHEES, FOSTER MACGOWAN. American politician, former Governor of New Jersey, died at Highbridge, N. J., June 14. Born in Clinton, N. J., Nov. 5, 1856, he graduated at Rutgers College in 1876 and undertook the study of law. He began law practice in Elizabeth in 1880, was a member of the Elizabeth Board of Education in 1884, elected to the Assembly for a three-year term, 1888–90, in 1894 entered the State Senate and in 1898 was made its presiding officer. When Governor Griggs resigned to become Attorney General of the United States the duties of governor devolved upon the president of the Senate and on Feb. 1, 1898. Mr. Voorhees became acting governor. A year later he was elected governor in his own right, serving a three-year term. In 1899 Rutgers conferred on him an honorary LL.D. degree as did Princeton in 1901.

VORARLBERG, fōr′ärl-bĕrk. A province of the new republic of Austria since the overthrow of the Dual Monarchy; formerly a crownland of the Austro-Hungarian monarchy. Area, 1005 square miles; population, according to the census of 1923, 139,999. Capital, Bregenz.

WADE, FESTUS JOHN. An American financier, died in St. Louis, Mo., September 28. He was born in Limerick, Ireland, in 1859 and was brought to America the following year. After very little schooling he began his business career in a dry goods store in St. Louis when he was 10 years of age. He tried several other occupations before he entered the banking business when he was 29. In 1899 the Mercantile Trust Company of St. Louis was organized with Mr. Wade as president. The total deposits at that time were $17,000 as against approximately $60,000,000 in 1927. He was a director of many corporations including the Chicago and Alton R. R., and Metropolitan Life Insurance Co. In 1918 during the World War he was appointed a member of the advisory committee of the Division of Finance and Purchases of the U. S. Railway Administration. In 1920 he went as chairman of the American Bankers' Association committee to the International Chamber of Commerce meeting in Paris.

WADHAMS, ALBION VARETTE. Rear Admiral, United States Navy, died at Nice, France, on January 13. He was born at Wadhams Mills, N. Y., in 1848, and graduated from the U. S. Naval Academy in 1868. During the succeeding 40 years he commanded many ships and naval stations. On his retirement in 1907 he was appointed a member of the New York State Board of Pardons, and in 1920 he was placed in command of the naval prison at Portsmouth, N. H.

WAGES. See LABOR.

WALCHOWITE. See CHEMISTRY, under *Mineralogical Chemistry.*

WALCOTT, CHARLES DOOLITTLE. An American geologist, died at Washington, D. C., February 9. He was born at New York Mills, N. Y. Mar. 31, 1850, and was educated at Utica Academy. Early showing an interest in geology, he educated himself in this field by direct contact with nature and careful study of various books and association with geologists and other scientists. In 1876 he became an assistant on the New York State Geological Survey, and in 1879 he was appointed to a like position in the U. S. Geological Survey. He devoted himself to a study of Cambrian rocks and fauna of the United States and in 1888 became palæontologist in charge of invertebrate palæontology. In 1893 he was made geologist in general charge of geology and palæontology and in the following year became director of the U. S. Geological Survey, serving until 1907. In that year he was chosen to be secretary and executive head of the Smithsonian Institution, and during the 20 years he held the post he assembled more Cambrian fossils in the Smithsonian than there were to be found in the museums of all the rest of the world. He was president of the National Academy of Sciences from 1917 to 1923. He held honorary degrees from Paris, Cambridge, St. Andrews, Christiania, Hamilton, Chicago, Johns Hopkins, Pennsylvania, Yale, Harvard and Pittsburgh universities. The author of many important geological memoirs and reports, his greatest work is the two-volume classic, *Cambrian Brachiopoda* (1912).

WALDSTEIN, CHARLES. See WALSTON, SIR CHARLES.

WALES. A historical division of the United Kingdom, consisting of 12 counties on the west coast of Great Britain, between the Irish Sea on the north and the Bristol Channel on the South. Area, 7466 square miles; population, according to the census of 1921, 2,205,680. See GREAT BRITAIN.

WALSTON (born WALDSTEIN), SIR CHARLES. A British author and archæologist, died at sea on March 21. He was born in New York City on Mar. 30, 1856, and received his education at Columbia College and at Heidelberg. After studying at Leipzig and the British Museum he traveled in Italy and Greece, and in 1880 became lecturer in classical archæology at Cambridge University. He was director of the Fitzwilliam Museum there from 1883 until 1889, and Slade professor of fine arts at Kings College, 1895–1901. He was director of the American School of Classical Studies at Athens (1895–97) and was in charge of excavations at Platæa, Eretria, etc. A knighthood was conferred on him in 1912. He wrote: *The Balance of Emotion and Intellect* (1878); *Essays on the Art of Phidias* (1885); *Greek Sculpture and Modern Art* (1914); *Patriotism National and International* (1917); *The English-Speaking Brotherhood and the League of Nations* (2 eds. 1919–20); *Harmonism and Conscious Evolution* (1922); *Alcamenes and the Establishment of the Classical Type in Greek Art* (1926).

WAR, OUTLAWRY OF, ETC. See ARBITRATION, INTERNATIONAL; PEACE AND PEACE MOVEMENTS.

WAR DEBTS. See UNITED STATES.

WARFIELD, SOLOMON DAVIES. An American railroad organizer and banker, died in Baltimore, Md., on October 24. He was born near Baltimore in 1863, and after a public school education commenced to work as office boy in a firm of sugar merchants in Baltimore. He afterwards organized the Warfield Manufacturing Company, but, subsequent to his establishment of the Continental Trust Company in 1898, his activities had been concerned chiefly with various forms of finance rather than manufacturing. He was postmaster of Baltimore from 1894 to 1905, serving under Cleveland, McKinley and Roosevelt. As president of the Seaboard Air Line Mr. Warfield did much for the State of Florida by the extension of railroad lines and by assistance in solving the Everglades drainage problem. He organized the National Association of Owners of Railroad Securities, a protective organization which represented $10,000,000,000 in railroad securities and which was the means of initiating and presenting to Congress the fundamentals of the rate-making provisions of the transportation act of 1920. Mr. Warfield was also president of the Baltimore Steam Packet Company and a director in the Maryland Casualty Company and in the New York Life Insurance Company.

WARREN, General Sir Charles. A British soldier and archæologist, died in London on January 22. He was born in Bangor, Wales, Feb. 7, 1840. After receiving his military education at Sandhurst and Woolwich he joined the Royal Engineers in 1857, and in 1861 was engaged in a survey of Gibraltar. He afterwards carried out exploring work in Palestine, and in 1876 was a commissioner for settling the western boundary of the Orange Free State. He commanded the Diamond Field Horse in the Kaffir war of 1878 and the Bechuanaland expedition of 1884. He was in command of a division in the Boer war of 1899–1902. He was knighted in 1885 and was created a K. C. B. in 1888. His published works include: *Underground Jerusalem* (1876); *The Temple of the Tomb* (1880); and with C. R. Conder, *Jerusalem* (1884); *The Early Weights and Measures of Mankind* (1914).

WARREN, John Collins. An American surgeon, died in Boston, Mass., November 3. Born in Boston on May 4, 1842, he attended the Boston Latin School and in 1863 graduated from Harvard University and from Harvard Medical School three years later. He studied in London, Edinburgh, Paris, Berlin, and Vienna for two years. In 1871 he became instructor of surgery in the Harvard Medical School and for 56 years remained a member of the faculty, being professor of surgery in 1899 and in 1907 professor emeritus. He was an overseer of Harvard University, 1908–14. He received the honorary degree of LL.D. from the Jefferson Medical College, Harvard and McGill Universities and was made honorary fellow of the Royal College of Surgeons of England. He wrote extensively on surgery, among his works being: *Healing of Arteries in Man and Animals after Ligature* (1886); and *Surgical Pathology and Therapeutics* (1895).

WARREN, William Robertson. A former premier of Newfoundland, died at St. John's, N. F., December 31. He was born in St. John's on Oct. 9, 1879, and educated at Bishop Field College there and at Framlingham College, Suffolk, England. He was admitted to the bar in 1901 and created King's Counsel in 1910. Two years after his election to the Newfoundland House of Assembly in 1908 he was made Speaker and held that post for four years. Mr. Warren succeeded Sir Richard Squires as prime minister in 1923 and was defeated a year later, becoming a member of the Supreme Court bench of the colony.

WARSHIPS. See Naval Progress.

WASHBURN, Frederic Leonard. An American entomologist, died in Minneapolis, Minn., October 15. He was born in Brookline, Mass., in 1860, and graduated at Harvard in 1882. He then spent a year in graduate work at Johns Hopkins University, returning to Harvard. After serving as instructor in zoology at the University of Michigan 1887–89, he was appointed in 1889 professor of zoology at the Oregon Agricultural College, where he remained until 1895, when he went to the University of Oregon as professor of biology. During part of this period he was State biologist of Oregon. His appointment to the faculty of the University of Minnesota as professor of entomology followed in 1902 and from then until 1918 he was State entomologist of Minnesota. In 1918 he was made professor of economic vertebrate zoölogy at the University of Minnesota.

WASHINGTON. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,356,621. The estimated population on July 1, 1927, was 1,562,000. The capital is Olympia.

Agriculture. The following table gives the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Wheat, winter	1927	1,203,000	33,684,000	$36,042,000
	1926	847,000	19,481,000	22,403,000
Wheat, spring	1927	983,000	19,660,000	21,429,000
	1926	1,260,000	21,420,000	25,061,000
Hay	1927	962,000	2,369,000[a]	30,425,000
	1926	939,000	2,043,000[a]	27,876,000
Potatoes	1927	79,000	13,430,000	8,058,000
	1926	67,000	10,720,000	10,184,000
Oats	1927	183,000	9,150,000	5,124,000
	1926	229,000	9,847,000	5,219,000
Corn	1927	43,000	1,591,000	1,432,000
	1926	49,000	1,715,000	1,629,000
Barley	1927	58,000	2,436,000	1,876,000
	1926	64,000	2,176,000	1,414,000
Apples	1927		25,343,000	32,946,000
	1926		34,030,000	25,522,000

[a] tons.

Mineral Production. Coal, the chief mineral product of the state in point of value, was mined in 1926 at about the rate of the years immediately preceding. The quantity of coal produced was 2,548,000 short tons in 1926, in 1925, 2,537,890 short tons; the value of the coal mined in 1925 was $9,176,000. Coke production in the latest year of available record, 1925, was 79,257 short tons, and in 1924, 71,615 tons; in value, $617,265 in 1925 and in 1924, $573,644. Cement production attained a total quantity of 2,499,237 barrels in 1925 and 1,793,403 barrels in 1924; in value, $5,523,324 in 1925 and in 1924, $4,236,554. Clay products totaled, for 1925, $2,619,250; for 1924, $2,607,397. The quantities of the chief metals produced were as follows: gold, 9341 fine ounces, in 1926, as against 11,138 fine ounces in 1925; silver, in 1926, 171,649 fine ounces, in 1925 166,425 fine ounces; copper, 1,351,890 pounds in 1926 and in 1925, 1,159,057 pounds; lead, 4,546,228 pounds in 1926 and in 1925, 5,627,241 pounds; zinc, 1,044,354 pounds in 1926 and in 1925, 1,217,846 pounds. The total value of the production of these five metals in 1926 was $931,491; in 1925, $1,092,464. The production of stone and that of sand and gravel were both n excess of $1,000,000 in 1925. Magnesite producion was important, the quantity produced beng 79,560 short tons in 1926, and in 1925, 56,060 ons; in value, $596,700 in 1926 and in 1925, $560,600. The total value of mineral production n 1925, duplications eliminated, was $22,382,32; in 1924, $21,159,370.

The value of the gold, silver, copper, lead, and zinc produced from ore mined in the State of Washington in 1927 was about $872,200, according to estimates of the U. S. Bureau of Mines, Department of Commerce. There was a marked increase in the quantity of gold and a slight increase in copper and zinc. These increases, however, were outshadowed by the decrease in the output of lead and the general decrease in the metal prices of silver, copper, lead and zinc. The production of gold was more than doubled and increased to $396,900 in 1927, as a result of renewed activity both at Republic and in Whatcom County. The output of silver in the State decreased to 158,000 ounces in 1927. The output of copper increased slightly to 1,655,000 pounds in 1927. The output of lead decreased to 1,211,000 pounds, valued at $81,985, in 1927. The production of zinc recovered chiefly from concentrates increased to about 1,410,000 pounds in 1927.

Finance. As reported by the United States Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $20,515,354; their rate per capita was $13.40. They included $8,900,012 apportioned for education. Totals not included in the above, of $638,720 in interest and of $11,495,005 in permanent improvement outlays, brought the aggregate of State expenditure to $32,649,679. Of this, $10,892,912 was for highways; $2,698,595 being for maintenance and $8,194,317 for construction.

Revenue receipts were $31,013,970; or per capita, $20.26. Of their total, property and special taxes yielded 41.5 per cent, attaining a rate of $8.40 per capita. Earnings of departments and compensation paid the State for officials' services furnished 6.3 per cent of revenue; 35.8 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles and from a gasoline sales tax.

Net State indebtedness on Sept. 30, 1926, was $11,331,780, or $7.40 per capita. Property subject to ad valorem taxation bore a valuation of $1,207,621,667. State taxes levied thereon were $16,109,673, or $10.52.

Transportation. The total number of miles of railroad lines in the state on Jan. 1, 1927, was 5,555.02. There were built in 1927, as reported by the *Railway Age* 6.50 miles of first track.

Education. Two years of professional and academic training subsequent to graduation from high school became the requirement for the certification of teachers, while the previous system of examination for certificates was done away with. There occurred 34 school consolidations, according to State Superintendent Preston in the *Journal* of the National Education Association, bringing the total of consolidations to 366. The school population of the state for the scholastic year 1926–27, including individuals from 4 or 5 up to 21 years of age, was reckoned at 420,399. There were enrolled in the public schools of the state 334,435 pupils; of these, 261,091 were in the kindergartens and the elementary grades, and 73,344 were in high schools. Current expenditures of the year on public school education attained $25,150,787, and all expenditures, debt service and capital outlay included, were $31,214,225. Salaries of teachers averaged, for women, $1,417.38; for men, $1,900.40.

Charities and Corrections. The State conducted in 1927 twelve independently operated institutions for the care or custody of individuals. These were the State School for the Deaf, Vancouver; State School for the Blind, Vancouver; State Training School, Chehalis; State School for Girls, Grand Mound; State Soldiers' Home, Orting; Washington Veterans' Home, Retsil; Western State Hospital, Steilacoom; Eastern State Hospital, Medical Lake; Northern State Hospital; Sedro-Woolley; State Penitentiary, Walla Walla; State Custodial School, Medical Lake; State Reformatory, Monroe. Inmates of the state prison and the reformatory on Jan. 1, 1927, numbered 1548, according to statistics of the U. S. Department of Commerce.

Legislation. The Legislature convened in regular biennial session January 10, holding session in the new capitol building from the middle of February. Opponents of Governor Hartley dominated both houses, but lacked the strength to carry a programme of enactments over his veto. Appropriations passed provided $34,600,000 under the general appropriation measure, $1,500,000 in supplemental appropriations and $27,184,360 for roads, covered in part by a half-mill highway fund levy. There was passed over the Governor's veto a bill to render it lawful for persons related by marriage to intermarry. In all, 158 Senate and 207 House measures were enacted. Vetoes of items in the appropriation bills cut the total of appropriations for the biennium by about $2,500,000. It was provided that prisoners in the state penitentiary should work for compensation. Salary of the head of a family up to $25 was made exempt from garnishment. An administrative division of mining safety was created. Among measures vetoed were one to create a state-wide old age pension system, one providing for a certificate of title to motor vehicles, one permitting the use of voting machines at the polls and one allowing cities of the first class to incur debt for the acquisition of municipal golf courses. A constitutional amendment to allow the State to place different rates of taxation on different classes of property was submitted, to be voted on by the electorate in November, 1928.

Political and Other Events. Governor Hartley sought to have an audit made of the accounts of the State Highway Department, by the Director of Efficiency. After this examination had proceeded for some time, opponents of the Governor obtained a judicial order upon the State Highway Engineer, to deliver the books of the Department to the State Auditor. Delivery being refused, the State Supreme Court committed the engineer to prison October 19 for contempt. The Cascade Tunnel Association, seeking the creation of an easy gradient route traversing the Cascade Range by a deep tunnel 27 miles long was reported November 1 to have abandoned at its convention in Seattle a plan to persuade the State to engage its public credit for the sum of $40,000,000 for the cost of the project; it was proposed to seek instead the aid of private capital. At Mount Spokane a tract of 1500 acres was acquired for a state park.

An election at Spokane, held March 8, for the choice of a city commissioner, yielded a majority of but a single vote for Mayor Charles A. Fleming over John C. Argall, who contested the result. A recount board declared, December 7, that Fleming had been elected by 16 votes, receiving 11,936, as against 11,920 for Argall. At Bellingham, Russell Tremain, a 12-year-old boy taken from his parents in 1925 and made a court ward because the elder Tremains would not let him take a school oath of allegiance, was restored to his parents, December 15, by Supreme Court order.

OFFICERS. Governor, Ronald H. Hartley; Lieutenant Governor, W. Lon Johnson; Secretary of State, J. Grand Hinkle; Treasurer, W. G. Potts; Auditor, C. W. Clausen; Attorney General, John Dunbar; Superintendent of Public Instruction, Josephine Corliss Preston.

JUDICIARY. Supreme Court: Chief Justice, Kenneth Mackintosh; Associate Justices, Emmet N. Parker, Mark A. Fullerton, John R. Mitchell, O. R. Holcomb, Warren W. Tolman, John F. Main, William Askren, Walter French.

WASHINGTON, UNIVERSITY OF. A State institution of higher education at Seattle, Wash.; founded in 1861. The courses offered in 1927–28 were: Business administration, education, engineering, fine arts, fisheries, forestry, journalism, law, liberal arts, library science, mines, pharmacy, science, and graduate work. The enrollment for the autumn term of the same year was 7354, of whom 3088 were women, and 4266 men. Of this number 335 were graduate students (including all students with graduate standing except those in the professional schools of law and library science). The summer school enrollment for 1927 totalled 3249 in the two terms, including 2227 women and 1022 men. On November 1, the faculty consisted of 345 members. The income from all sources for the scholastic year 1926–27 was $2,700,816. The library contained 237,202 volumes. Acting president, Dean David Thomson.

WASHINGTON AND JEFFERSON COLLEGE. A non-sectarian institution of higher education at Washington, Pa.; founded in 1802. The enrollment for 1927–28 totaled 504, of whom 12 were graduate students; 82, seniors; 101, juniors; 128, sophomores; 181, freshmen. The 1927 summer session had a registration of 280. There were 30 members on the faculty. The productive funds of the college amounted to $1,441,128, and the income from all sources during the year was approximately $202,812. The library contained 38,194 volumes. President, S. S. Baker, M.S., LL.D.

WASHINGTON AND LEE UNIVERSITY. A non-sectarian institution of higher education at Lexington, Va.; founded in 1749. The enrollment for the autumn of 1927 was 874. There were 56 members on the faculty. The productive funds of the university amounted to $1,373,851, and the income for the year was $320,121. The library contained 60,000 volumes. President, Henry Louis Smith, Ph.D.

WASHINGTON BICENTENNIAL. See CELEBRATIONS.

WASHINGTON UNIVERSITY. A non-sectarian, coeducational institution of higher learning at St. Louis, Mo.; founded in 1853. The enrollment on Nov. 1, 1927, was 6434, distributed as follows: graduate students, 241; college of liberal arts, 1548; engineering, 418; architecture, 120; business and public administration, 143; law, 192; medicine, 341; dentistry, 153; fine arts, 307; extension division, 2731; nursing, 201. There were 920 students registered for the summer session of 1927. The faculty for 1926–27 numbered 504. The value of the buildings, grounds and equipment of the institution was estimated at $8,481, 967, the endowment was $13,343,897, and the income for the year was $2,031,255. The library contained 277,885 volumes and 116,619 pamphlets. A women's building, to cost $285,000, and the school of dentistry building, to cost $260,000, were under construction. Gifts received during the year amounted to $2,117,172 of which $1,000,000 was for the Mallinckrodt Radiological Institute and $1,000,000 for the Eye, Ear, Nose and Throat Hospital. Herbert S. Hadley, LL.D., (q.v.), Chancellor of the University, died on December 1. Acting Chancellor, George R. Throop, Ph.D.

WATER POWER. The number of applications for licenses under the Federal Water Power Act has for several years averaged about one hundred per annum. During 1927 these involved an aggregate of over three million horse power in prospective installations, according to the report of the Federal Power Commission. Of these applications that of the Appalachian Electric Power Company for a development of 100,000 horse power on the New River and one by the Savannah River Electric Company for 120,000 horse power on the Savannah River were among the most noteworthy. Thirty-one new projects having an installed capacity, when completed, of 362,000 horse power were started during the year.

On the Pacific Coast there was less activity in new hydro-electric construction. This was because most of the readily available sites had been developed and the large production of the California oil field had made it cheaper in many cases to meet the demands for additional power through the construction of large steam plants. Sufficient steam plant capacity was also desirable to supplement the seasonal fluctuation in available water power.

Such new work as was in progress on the Pacific Coast was concerned largely with the utilization of high heads. The outstanding project under construction in California at the end of the year was Big Creek Plant No. 2-A of the Southern California Edison Co., which was to contain two 56,000-horse power double overhung impulse wheels, running at 250-r. p. m. under a head of 2200 feet. These units represent the largest capacity Pelton type wheels ever built.

Of somewhat smaller capacity but higher head were two 30,000-horse power double overhung impulse wheels of the Pelton type for the Bucks Creek Development of the Feather River Power Company. These were to operate under a head of 2548 feet. Another high head plant which went into operation in 1927 was the Balch Plant of the San Joaquin Light & Power Company, which contains a 40,000-horse power impulse operating under 2400 feet head.

The Conowingo development on the Susquehanna River, perhaps the most outstanding project in the East, was nearing completion. This is destined to tie into the large interconnected system of steam and hydro plants serving Philadelphia, eastern Pennsylvania and practically the whole State of New Jersey. The seven 54,000 horse power generators were the world's largest in dimensions, although not in capacity. They are 38 feet outside diameter and weigh a million and a quarter pounds each. They operate at about 82 r. p. m. under a head of 89 feet.

Inasmuch as it was planned to operate the Conowingo turbines at peak loads and shut them down during low load periods of the day (because they would operate as part of a large interconnected power system), it was important to provide against leakage when they were shut down. Therefore, a novel feature was incorporated in the form of 27-foot butterfly valves at the inlet to the spiral casing instead of the usual head-gates at the upper ends of the penstocks. Another feature of these units is the large amount of welding employed to save weight, whenever possible, over castings.

A unique installation was the development to be made on the Rocky River near Danbury, Conn. Here the system comprises a chain of several water-power plants on the river and an existing steam plant, the Devon Station, near Tidewater. A large storage reservoir was to be built at relatively high elevation and into this water will be pumped, by electricity from either hydro or steam power, during off-peak periods and seasons of excess flow. This water will then be drawn from the reservoir for use in the hydro plants during dry seasons or to help out during periods of peak load. The scheme had been employed quite extensively in Europe where there were about forty such installations either in operation or under construction, but it was the first application of its kind in the United States.

Activity in hydro-electric development continued unabated in Canada. During 1927 over 220,000 horse power was installed making a total for the Dominion of some 4,770,000 horse power. This would be increased to over five million horse power by the completion of projects under construction during the year—an increase of 100 per cent in the previous seven years. These developments comprised both power companies and large industrial plants, particularly paper mills.

Of interest in the line of efficiencies attained with hydraulic turbines may be mentioned the results of tests conducted on the 35,000-horse power units now in operation at Muscle Shoals. A maximum efficiency of 93.1 per cent was attained at rated load and 83.7 per cent at half load under a net head of 90 feet. The corresponding combined turbine and generator efficiency under full load was 91 per cent, which probably represents a record for a unit of this type.

Among improvements in design warranting mention was the introduction of water-lubricated guide bearings with rubber linings to minimize cutting or scoring of the shaft from sand or grit. Also during the year a number of companies adopted electric drive for the turbine governors. Induction motors were employed for this purpose. It may also be mentioned that an appreciable portion of the new work under construction covered turbines with propeller-type runners.

The increasing demand for automatic operation of hydro plants, in order to reduce labor, especially where a system of small plants is involved, resulted in such control apparatus becoming highly developed. A relatively large number of plants are now so operated and are giving entire satisfaction.

WATER SUPPLY. See Aqueducts; Water-works and Purification.

WATER WHEELS. See Water Power

WATER-WORKS AND PURIFICATION. Activity in water-works construction continued. For Boston and vicinity the Metropolitan Water Supply Commission, a special body created for the purpose, was engaged in providing an additional water supply for Boston and adjacent cities from distant gathering grounds in the Ware and Swift Rivers drainage basin, at an estimated total expense of $65,000,000. Bids were received near the close of the year for the easterly half of the aqueduct tunnel some 13 ft. in diameter and 25 miles long, extending from the existing Wachusett Reservoir on the Nashua River to a proposed diverting reservoir on the Ware River from which the flood flows of that stream will be sent easterly to the Wachusett Reservoir or else westerly through the other half of the tunnel, when built, to a proposed storage reservoir on the Swift River which will store the waters of both streams. Shafts from which the easterly half of the tunnel will be driven have been sunk and it is expected that this portion of the tunnel will be in use in 1931.

New York City was engaged in making borings and plans for an auxiliary deep pressure tunnel to supplement the one already in existence for conveying water from the existing Catskill aqueduct supply, from the Hillview reservoir in the City of Yonkers through Bronx Borough and under the East River to Brooklyn. The tunnel will be 17 ft. in diameter at the upper end and 20 miles long. Uptakes will connect it with the existing distribution system. Estimated cost of this project was $67,000,000. In place of the additional water supply of 434,000,000 gallons a day from streams east of the Hudson River and north of the existing Croton supply system, proposed in 1926, there was before the Board of Estimate and Apportionment for approval at the close of the year recommendations by the Board of Water Supply of New York City for an additional water supply of 600,000,000 gallons a day from five New York tributaries of the Delaware River, together with a supply of 100,000,000 gallons a day from Rondout Creek, a tributary of the Hudson. The estimated cost of the new project is $273,000,000, which is about $75,000,000 less than the estimated cost of the project recommended in 1926. See Aqueducts and map in that article.

Interstate complications were threatened both as to the Boston Metropolitan and the New York additional water supply projects, Connecticut insisting that the Swift River diversion would injuriously affect cities and industrial plants on the Connecticut River within its boundaries, and both the State of New Jersey and the City of Trenton claiming injury from the diversion of water from tributaries of the Delaware for the supply of New York City. A tri-state Delaware River compact for the allocation of the waters of the Delaware River among the states of New York, New Jersey and Pennsylvania was still without ratification at the close of the year, except by the New York legislature.

Progress was made on large additional water supplies for both Albany and Rochester, N. Y. Both of these, and also the proposed additional supplies for Boston and for New York City, would be by gravity. Baltimore, Md., and Washington, D. C, completed supplemental filtration plants of large size, each being of the mechanical or rapid type. The earlier plant at Washington, built many years ago, was of the flow sand type, now rarely adopted for new construction. Chicago had established an experimental water treatment plant to obtain information for its guidance in carrying out the virtual orders of the War Department, to install water purification works, these orders not being addressed to the City of Chicago, but to the Chicago Sanitary District, as a condition of the War Department permit for the continued diversion of water from Lake Michigan to the Chicago Drainage Canal for the dilution and disposal of the sewage of the district.

San Francisco was continuing construction of the Hetch Hetchy aqueduct to bring water by gravity from the Tuolumne River. The East Bay Cities Municipal Utility District, including Oakland and eight other cities, was introducing a gravity water supply from the Mokelumne River. The present supplies of San Francisco and also of most or all of the cities in the district across the bay were furnished by private water companies. On November 1, the nine cities on the east side of San Francisco Bay voted by more than 8 to 1 a $26,000,000 bond issue to acquire or construct a water distribution system. San Francisco had an option on the purchase of the property of the Spring Valley Water Company, from which its supply was derived, but, on June 14, it voted down for the fourth time a proposal to buy the works, there having been each time an actual majority but not the legally required two-thirds majority in favor of the bonds. It was expected that a two-thirds majority would be obtained at a later election.

Montreal, Canada, let contracts in 1927 for a large supplemental filtration plant. Its city council early in the year voted to buy for $14,000,000 the water-works system of the Montreal Water & Power Company, which supplied territory within and adjacent to Montreal. The city actually took over the works and operated them for a time, but various legal complications connected with allegations of unduly high prices paid for the plant led to the return of the works to the company and the appointment of a condemnation commission to fix the price of the property.

A new edition of the late George C. Whipple's *Microscopy of Drinking Water,* revised and enlarged by G. M. Fair and M. C. Whipple, appeared in 1927. See Aqueducts.

WAVE MECHANICS. See Physics.

WEATHER. For several years, the American press had given a great deal of publicity to the prediction that the weather of 1927 would be so abnormal as to constitute a return of the "summerless" year 1816, and so adverse to agriculture as to menace the nation's food supply. This prediction, however, proved to have been completely unfounded. In no particular did the weather of 1927 dispay abnormalities other than such as have occurred in the past and are more or less to be expected in any year; and the yields of most of the principal crops (with the exception of certain fruits) were close to, or above, normal, not only in the United States but for the world as a whole.

Unusual weather occurs each year over greater or less areas; and conditions adverse, or seriously destructive, to crops likewise occur each season in one or more regions, but never so extensively as to menace the food supply of the country. Over the country as a whole, the weather during the growing season of 1927 was in general favorable; in most of the principal agricultural sections the season was longer than usual, and the general warmth during the fall made the latter part of the period almost ideal. For the United States as a whole, June and August were markedly cool; the remaining months were either above, or not far below, normal, though May was decidedly cool in the northwestern border states.

The summer as a whole (i e., June, July and August) was unusually cool over most of the country; but of the summers of 1903, 1907, 1915, and 1927, there is little to enable one to say which was the most conspicuous in respect to coolness, although, considering the temperatures reached, the length of time they prevailed, and of the areas affected, probably 1915 should be given first place. The summer of 1927 was the coolest during the last fifty odd years at Lynchburg, Memphis, and Cincinnati; the second coolest at New York City, Philadelphia, Chicago, St. Louis, and Indianapolis; and the third coolest at Washington, D. C. At New Haven and New Bedford, it ranked thirtieth and thirty-second, respectively. In the Western States, the summer was unusually warm; it was the hottest on record at Portland, Oregon, and the third hottest at San Francisco.

The most abnormal single month was August, which, due to an excess of cloudiness and an absence of marked hot spells, was one of the coolest months of August in the last fifty years over a large part of the eastern north and central states. See Geographical Society, National.

WEATHER BUREAU, U. S. See Meteorology.

WEEVIL. See Entomology, Economic.

WEIR, Robert Fulton. An American surgeon, died in New York City on April 6. Born in New York on Feb. 18, 1838, he was graduated from the Columbia College of Physicians and Surgeons in 1859. He was assistant surgeon in the Union army during the Civil War. From 1873 until 1900 he was a lecturer and a professor of surgery at Columbia University, and in the latter year was president of the American Surgical Association and also of the New York Academy of Medicine. He was attending surgeon at New York Hospital, 1876–1900, and was connected with many medical organizations. He was made an honorary fellow of the Royal College of Surgeons in London in 1909.

WEISSITE. See Chemistry, under *Mineralogical Chemistry;* Mineralogy.

WELFARE WORK. National Conference of Social Work. The fifty-fourth meeting of this organization met at Des Moines May 11–18 with something like 3000 social workers in attendance. It was the customary hive of activity with a bewildering number of special sections and round tables. It became more and more doubtful whether an expression of a social philosophy could be expected from this group. Conference after conference devoted itself to the plight of the maladjusted without troubling to inquire into the fundamental reasons for maladjustment.

As was said, the round tables lost themselves in a wealth of detail. There were discussions of the visiting teacher, the building of rural community centres, and the problems of undifferentiated case work in country communities. There was hearty endorsement of the work of prohibition, Miss Grace Abbott calling the Eighteenth Amendment the "great child-welfare measure of the century." Nevertheless, there was fairly general agreement that a substitute for the saloon as a social unit had not yet been found, despite the automobile, the radio, and motion pictures.

The conference showed how rapidly fashions changed. The emphasis was no longer on the intelligence quotient of the unfit but upon his emotional reactions. Psychology is not the key but psychiatric social work. The conference witnessed a successful meeting of the committee on publicity methods.

Other papers and discussions were Leon Whipple's "The Magic Gift of Style." Miss Jane Addams on the "Social Consequences of the Immigration Law," Royal Meeker on "International Aspects of Social Work." Memphis was decided on as the place for the next conference under the presidency of Sherman C. Kingsley of Philadelphia. Howard R. Knight was continued as general secretary. Division meetings included the following subjects: Children, Delinquents and Correction, Health, the Family, Industrial and Economic Problems, Neighborhood and Community Life, Mental Hygiene, Organization of Social Forces, Public Officials and Administration, the Immigrant, Professional Standards and Education, Educational Publicity.

National Conference of Jewish Social Service. This group met at Des Moines, Iowa, also May 8–11. The tenor of the Conference was more or less concerned with the *raison d'être* of sectarian, and particularly Jewish, social work. Harry L. Lurie delivered an excellent paper on the relations between Jewish family agencies and public and non-sectarian agencies. It was the theme of his discussion that public agencies were preëmpting gradually the field of family dependency, and rightly so. Other outstanding papers were those by M. J. Karpf ("Extra-Curricular Training of Jewish Social Workers"), Dr. A. M. Dushkin ("Development of Community Programs of Jewish Education"), S. A. Goldsmith ("Factual Material in Child-Care Surveys of the Bureau of Jewish Social Research"). The Conference voted to continue meeting annually. For 1927–28, Morris D. Waldman was elected president. Cincinnati was chosen as the place of the 1928 Conference.

Statistics. Estimates put the total expenditure on American philanthropic activity yearly in the neighborhood of two billions. In New York City alone, there were 1500 private social welfare agencies with budgets that ran between $40,000,000 and $50,000,000. Chicago spent at least $30,000,000 while the Community Chests of 299 other cities (and this excluded unaffiliated societies) spend in the neighborhood of $57,000,000 annually on non-official charities. An important development of the twentieth century was the creation of large financial foundations with huge funds in trust to be expended on social amelioration. The Russell Sage Foundation (q.v.) lists 78 such, as of 1926, 40 of thes having funds in trust to a total of $432,000,000 The Russell Sage Foundation has $15,000,000 the Rockefeller Foundation (q.v.) has $165,000,000; the Laura Spelman Rockefeller Memoria has $73,000,000; the Carnegie Corporation (q.v. has $135,000,000. If to the 40 funds mentione above were added the 21 educational funds ther would result a total of 61 foundations possessing $790,000,000. It is safe to say that if th funds whose values are unknown were to be included there would be 117 foundations having value of a billion dollars.

Publications. A new and important additio to the periodicals in this field was the *Socia Service Review*, a quarterly, edited by the faculty of the graduate school of Social Scienc Administration of the University of Chicago The managing editors were Edith Abbott an S. P. Breckenridge. Volume 1, number 1 appeared in March, 1927.

WELLAND CANAL. See Canals.

WELLESLEY COLLEGE. A non-sectaria institution for the higher education of women a Wellesley, Mass.; founded in 1875. The enrollment for the term of 1927 was 1604, includin 37 resident candidates for the degree of M.A. 23 for the certificate in hygiene and physica education, and 7 for the M.S. in hygiene an physical education. The actual teaching sta numbered 166, and the officers of instruction an government 239. The trust funds amounted t $8,520,418.60, and the income for the year wa $1,005,699.14 (including dormitories' net). change was effected in the curriculum whic diminished the prescribed work by six hours. Th library contained approximately 120,000 volumes. President, Ellen Fitz Pendleton, M.A. Litt.D., LL.D.

WELLINGTON, George Lewis. An American politician, former Senator from Maryland died at Cumberland, Md., March 20. He wa born at Cumberland in 1852. After very littl schooling he went to work in a store and in hi spare hours he educated himself. He was an accountant in the Second National Bank at th age of eighteen, serving under the late Lloy Lowndes, president of the bank, whose successful campaign for governor he later managed. Mr Wellington was elected to the House of Representatives in 1894 and to the Senate two year later. At one time he was much in the publi eye because of his differences with Presiden McKinley over the Philippine question, and h supported Mr. Bryan for the presidency.

WESLEYAN METHODIST CONNECTION OF AMERICA. See Methodist, Wesleyan Connection of America.

WESLEYAN REFORM UNION. See Methodists, Wesleyan.

WESLEYAN UNIVERSITY. An institution for the higher education of men at Middletown, Conn.; founded in 1831. The 1927 autum enrollment was 621, the number of students being restricted. The faculty numbered 61. Th productive funds of the University amounted t $4,678,423, and the income for the year wa $533,555. The Olin Library, costing $750,000 the Shanklin Laboratory of Biology and a ne dormitory were under construction during th year. President, James Lukens McConaughy, Ph.D.

WESTERN AUSTRALIA. A state of th Commonwealth of Australia, comprising tha portion of the island continent which lies to the west of the Northern Territory and Southern Australia; the largest state in the Commonwealth, constituting almost one-third of the area of the continent. Area, estimated at 975,920 square miles; population, according to the census of 1921, 332,732; the full-blooded aborigines were estimated at 22,471 in 1924–25; estimated population of the state on Mar. 31, 1927, 381,470. Capital, Perth, with an estimated population at the end of 1925, including suburbs, of 179,338. In 1924–25 the movement of population was; Births, 8185; deaths, 3315; marriages, 2746. In 1924 immigrants, 25,195; emigrants, 29,924. In 1925, the number of government schools was 810, with 51,647 students enrolled; the number of private schools was 122, with 11,609 students enrolled.

In 1926 the area under crops was 2,932,109 acres. The estimated areas sown with wheat, oats and barley for the 1926–27 season, both for grain and hay, were respectively, 2,776,818, 454,034, and 17,114 acres. In 1926 the chief crops with their acreage and yield were as follows: Wheat, 2,112,032 acres, 20,471,177 bushels; oats, 278,344 acres, 2,939,380 bushels; barley, 13,306 acres, 158,300 bushels; hay, 391,142 acres, 355,269 tons; potatoes, 4262 acres, 16,097 tons; vines, 1096 acres, 238,726 gallons of wine. The livestock numbered 170,563 horses, 835,911 cattle, 6,861,795 sheep, 74,316 pigs, 21,596, goats, 5594 camels, and 10,315 miles and donkeys. The wool clip was 44,009,161 pounds and the value of wool exported was £3,500,000. The two leading minerals are coal and gold. In 1925, 437,461 tons of coal valued at £363,203 were mined and 441,257 ounces of gold valued at £1,874,320.

The dependence of Australia on overseas trade was demonstrated by Western Australia's record for the fiscal year ended June 30, 1926. Official figures show that during this period almost 68 per cent of the State's trade was with the overseas markets while 32 per cent of the total was with other states in the Commonwealth. Direct imports from overseas were valued at £7,963,500, as compared with £8,000,000 for the previous year, and the foreign import arrivals by way of other states amounted to £921,500, against £941,654 during the previous year. Imports of Australian origin into the State of Western Australia during the year reached £7,500,000. Of total exports valued at £14,600,000, more than £12,600,000 went overseas, and only £1,540,000 to other Australian States. Large quantities of jams and jellies, preserved milk, manufactured tobacco, butter, cheese, confectionery, oatmeal, bacon and hams, and tinned meat are required annually. The revenues for 1925–26 amounted to £8,808,116, against expenditures of £8,907,308. The deficit of the state, which had been accruing since 1912, amounted in 1926 to £6,200,000. On June 30, 1926, the railway system comprised 3864 miles of main line representing a capital expenditure of £21,026,792.

Executive power is vested in a governor who acts through a responsible ministry; and legislative power in a parliament of two houses, a council of 30 members elected for six years and an assembly of 50 members elected for three years. Governor in 1927 Lieut. Col. Sir William Robert Campion; prime minister, treasurer, and minister for forests, Philip Collier.

WESTERN RESERVE UNIVERSITY. A non-sectarian institution of higher education at Cleveland, Ohio; chartered in 1826. The enrollment for the autumn of 1927 in the regular day curricula was 3262, distributed as follows: Adelbert College, for men, 914; college for women, 824; school of medicine, 245; school of law, 283; school of pharmacy, 118; school of dentistry, 184; school of nursing, 251; school of library science, 73; graduate school, 324; school of applied social sciences, 187; kindergarten training department, 152. The enrollment in Cleveland College, the evening school of the University, was 2255, and the enrollment in the courses for teachers in service, carried on in coöperation with the Cleveland School of education, was 2032. The 1927 summer school, carried on in coöperation with the Cleveland School of Education, had a registration of 1932. In the autumn of 1927 the faculty numbered 351 professors, associate professors, assistant professors and instructors, 151 lecturers and demonstrators and 107 fellows and assistants. The endowment of the University was $7,701,691, and the income for the year $1,523,899. The library contained 300,000 volumes. President, Robert E. Vinson, D.D., L.H.D., LL.D.

WEST POINT. See UNITED STATES MILITARY ACADEMY.

WEST SPITZBERGEN. The largest and most important of the islands of the Svalbard Archipelago (q.v.), which had become of international interest since it passed under the sovereignty of Norway. Until 1925 it had neither law nor government, and its resources of land and sea game were nearly exterminated by unregulated hunting. Norway promulgated drastic laws for the conservation of game; reindeer cannot be killed until 1935, and all hunting must be done under license and strict regulations. There are immense deposits of coal of high quality, the reserves being estimated at over 10,000 million tons. There are 13 coal companies; six are working with the most efficient machinery. Mining continues throughout the year, but shipments are usually confined to six months. The shipments were, in 1922, 103,000 tons; in 1924, 451,914 tons; in 1925, 414,412 tons; and were expected soon to approximate 500,000 tons.

The population of about 2000 in summer falls in winter to 1500. Ample provisions are made for health and comfort, with church, school, hospital, movies, etc. The largest settlement is Longyear City, at Ice Fiord, where its 500 or more inhabitants have all modern comforts, regular mail and radio service.

WEST VIRGINIA. POPULATION. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 1,463,701. The estimated population on July 1, 1927, was 1,696,000. The capital is Charleston.

AGRICULTURE. The following table presents the acreage, production and value of the principal crops in 1926 and 1927.

Crop	*Year*	*Acreage*	*Prod., bu.*	*Value*
Hay	1927	849,000	1,284,000 [a]	$19,197,000
	1926	797,000	1,050,000 [a]	20,294,000
Corn	1927	451,000	15,109,000	15,109,000
	1926	485,000	16,005,000	15,045,000
Potatoes	1927	58,000	5,989,000	7,486,000
	1926	47,000	4,982,000	8,820,000
Wheat, winter	1927	185,000	1,796,000	2,461,000
	1926	147,000	2,852,000	3,175,000
Oats	1927	224,000	5,421,000	3,469,000
	1926	207,000	5,796,000	3,420,000
Tobacco	1927	7,500	6,000,000 [b]	1,170,000
	1926	10,000	8,500,000 [b]	1,114,000

[a] tons, [b] pounds.

Mineral Production. The bituminous coal output of the State, second only to that of Pennsylvania in point of quantity, was much increased in 1926, and but slightly below the Pennsylvania total. There were mined in the State in 1926, according to estimate based on railroad shipments, 147,209,000 short tons of soft coal, as compared with 122,380,959 tons produced in 1925. The 1925 product was valued at $209,655,000. From coal were produced in 1925, the latest year of available record, 1,546,032 short tons of coke, and in 1924, 1,328,659 short tons; in value, $6,648,745 for 1925 and for 1924, $6,048,638. There were produced in 1925, the latest year of available record, 180,345,000 M cubic feet of natural gas; in 1924, 182,285,000 M cubic feet. The product was valued at $70,903,000 for 1925 and for 1924 at $68,000,000. In value of natural gas produced in 1925, West Virginia led the list of States. There were obtained from natural gas in 1926 65,000,000 gallons of gasoline; in 1925, 58,201,000 gallons. Gasoline thus produced had a value of $7,700,000 (estimated) for 1926 and for 1925 of $6,759,000. Petroleum production in 1926 was 5,975,000 barrels, as against 5,753,000 barrels in 1925; in value, $20,200,000 (estimated) in 1926 and in 1925, $20,055,000. Pig iron was produced and shipped to the quantity of 364,302 long tons in 1926, and of 499,047 tons in 1925, the product for 1925 having a value of $9,416,095. Clay products had for 1925 a total value of $15,293,371; for 1924, $15,625,022. The total value of the State's mineral production in 1925, duplications eliminated, was $333,527,697; in 1924, $307,314,205.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending June 30, 1926, were $11,994,063; their rate per capita was $7.25. They included $2,035,500 apportioned for education. Totals not included in the above, of $2,281,312 in interest and of $11,768,330 in permanent improvement outlays, brought the aggregate of State expenditure to $26,043,705. Of this, $12,427,143 was for highways; $2,125,579 being for maintenance and $10,301,564 for construction.

Revenue receipts were $19,449,476; or per capita, $11.76. Of their total, property and special taxes yielded 24.8 per cent, attaining a rate of $2.92 per capita. Earnings of departments and compensation paid the State for officials' services furnished 9.2 per cent of revenue; 53.5 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $47,724,866, or $28.85 per capita. Property subject to ad valorem taxation bore a valuation of $2,135,190,290. State taxes levied thereon were $2,989,266, or $1.81 per capita.

Transportation. The total number of miles of railroad line in the State on Jan. 1, 1927, was 4,023.65. There were built in 1927 according to the *Railway Age*, 6.34 miles of first, 4.70 of second, 0.61 of third and 0.75 of fourth or other track.

Education. The State commenced a survey of the schools, both elementary and high, and of the institutions of higher learning. A teachers' manual and course of study for elementary schools was completed, comprising 440 pages, and prepared by the State board with the aid of a special committee. The school population of the State as given in 1927 was 503,954. There were enrolled in the public schools 384,720 pupils. Of these 349,409 were in the elementary schools and 35,311 in high schools. Expenditure for public school education in 1926 attained a total of $25,125,049. The salaries of teachers averaged, in elementary schools, $959; in high schools, $1959.

Charities and Corrections. State institutions of welfare are: Weston State Hospital; Spencer State Hospital; Huntington State Hospital; Hospital No. 1, Welch; Hospital No. 2, McKendree; Hospital No. 3, Fairmont; State Tuberculosis Sanitarium, Hopemont; State Colored Tuberculosis Sanitarium, Denmark; State Colored Hospital for the Insane, Lakin; West Virginia Children's Home, Elkins: West Virginia Colored Orphans' Home, Huntington; State Home for Aged and Infirm Colored Men and Women, Charleston; West Virginia Penitentiary, Moundsville; West Virginia Industrial School for Boys, Pruntytown; West Virginia Industrial Home for Girls, Industrial; State Industrial School for Colored Boys, Lakin; State Industrial Home for Colored Girls, Huntington; Schools for Deaf and Blind, Romney; West Virginia School for Colored Deaf and Blind, Institute. Patients in State hospitals for mental disease on January 1, 1927, according to statistics of the U. S. Department of Commerce, numbered 2315; prisoners in State prisons and reformatories, 1799.

Legislation. The thirty-eighth regular session of the Legislature convened January 12, and adjourned May 3. It passed a law to submit to the voters in November, 1928, an amendment to the State constitution, to allow issue of $35,000,000 of State road bonds, in addition to the $50,000,000 previously authorized by vote in 1920. Another amendment proposal passed, for ratification at the same time, was to limit legislative sessions to 60 days, subject to extension by two-thirds vote of each house, as against an existing constitutional limit of 45 days, with like provision for extension. From 3½ cents, the State tax on sales of gasoline was raised by enactment to 4 cents the Legislature was called by Governor Gore in extraordinary session after its adjournment, and it convened June 4.

Officers. Governor, Howard M. Gore; Secretary of State, George W. Sharp; Treasurer, W. S. Johnson; Auditor, Sam T. Mallison; Attorney-General, Howard B. Lee; State Superintendent of Free Schools, George M. Ford; Commissioner of Agriculture, John W. Smith.

Judiciary. Supreme Court: President, M. O. Litz; Associate Judges, W. N. Miller, Frank Lively, John H. Hatcher, Homer B. Woods.

WEST VIRGINIA UNIVERSITY. A coeducational institution of higher education at Morgantown, W. Va.; founded in 1867. In the autumn of 1927 the enrollment was 2750, of whom 1900 were men and 850 women. There were 1240 registered in the summer school of the same year. The faculty numbered more than 300. The libraries contained 92,000 volumes. During the year a new women's gymnasium was completed at a cost of $272,000 and a new field house for men, to cost $280,000, was under construction. John Roscoe Turner, Ph.D., was elected president to succeed Frank B. Trotter, LL.D., on July 1, 1928.

WHEAT. A summary of the world's wheat situation by the International Institute of Agriculture, Rome, placed the quantity of wheat available for export, for the year beginning Aug. 1, 1927, at 960,000,000 bushels and the probable requirements of importing countries at 775,000,000 bushels, and concluded that the available supplies of wheat were sufficient to meet all consumption requirements and to leave a large carry-over at the close of the year. During the corresponding preceding period 835,000,000 bushels out of an available supply of 960,000,000 bushels were exported. The total production of thirty-five countries in 1927 was 3,128,227,000 bushels, or 3.2 per cent more than the harvest of 1926 and 7 per cent above the average yield for the five years 1921–1925. The average in these countries was less than 1 per cent above that of the preceding year and 3.1 per cent above the average for the five-year period. The production of the leading countries, besides the United States, was reported as follows: Canada 444,282,000 bushels. India 334,059,000, France 284,353,000, Italy 202,087,000, Spain 145,597,000, and Germany 113,644,000. The yield of the Soviet Republics in 1926 was 819,565,000 bushels. The production of Argentina for the crop year 1926–27 was 22,826,000 bushels and of Australia 160,852,000. The Australian yield for the crop year 1927–28 was estimated at 110,000,000 bushels.

The wheat production of the United States in 1927, as estimated by the Department of Agriculture, was 871,691,000 bushels grown on 58,583,000 acres, the rate per acre being 14.9 bushels. In 1926 the production was 831,040,000 bushels, the area 56,337,000 acres, and the rate 14.8 bushels per acre. The average farm price on Dec. 1, 1927, was $1.118 per bushel as compared with $1.198 on Dec. 1, 1926. On this basis the total value of the crop of 1927 was $974,694,000, and of the crop of 1926, $995,954,000. Of the total area in 1927, 2,711,000 acres were in spring wheat and 37,872,000 acres in winter wheat. The production of spring wheat, including durum wheat, was 319,307,000 bushels at the rate of 15.4 bushels per acre and of winter wheat 552,384,000 bushels at the rate of 14.6 bushels per acre. As compared with the preceding year the spring wheat production was larger by 115,700,000 bushels and the winter wheat production smaller by 75,049,000 bushels.

Of the 25 States reporting spring wheat yields, the leading States and their production were as follows: North Dakota 124,970,000 bushels, Montana 65,952,000 bushels, South Dakota 44,303,000 bushels, Idaho 20,100,000 bushels, Washington 19,660,000 bushels, and Minnesota 18,080,000 bushels. The durum wheat production amounted to 76,155,000 bushels as against 43,981,000 bushels in 1926 and the yields per acre for the two years were 14.4 and 9.2 bushels respectively. The yields of durum wheat in the four leading producing states were as follows: North Dakota 55,916,000 bushels, South Dakota 16,401,000 bushels, Minnesota 3,538,000 bushels, and Montana 300,000 bushels. The yields of winter wheat in the leading States of the 39 States reporting were as follows: Kansas 111,283,000 bushels, Nebraska 70,868,000 bushels, Washington 33,684,000 bushels, Oklahoma 33,372,000 bushels, and Illinois 30,956,000 bushels. The average yields per acre ranged from six bushels in New Mexico to 28 bushels in Washington. The average farm price of winter wheat on Dec. 1, 1927, ranged from 92c. per bushel in Montana to $1.55 in Alabama and Georgia, and the corresponding price of spring wheat from 94c. in Wyoming to $1.75 in Maine. During the year ended June 30, 1927, the United States exported 156,250,000 bushels of wheat and 13,385,000 barrels of wheat flour, and imported 13,235,000 bushels of grain and 1,187,000 pounds of flour.

The cost of producing wheat in the United States in 1926, as determined by the Department of Agriculture on the basis of 5120 reports, was $21.33 per acre and $1.12 per bushel. The cost per bushel ranged from 98 cents in the South Central States to $1.28 in the North Atlantic States. The results of another study indicated that in the last 40 years the average yield per acre had increased 17 per cent corresponding to an increase in the average annual production of 120,000,000 bushels. In 1927 a large part of the wheat in many sections was harvested with the combined harvester-thresher known as the combine. This year half of the wheat in Kansas was harvested with the combine, more than three hundred of these machines were used in Illinois, and over 50 in Indiana. Combines were introduced also into several Eastern states. See AGRICULTURE.

WHEELER, BENJAMIN IDE. American educator and former president of the University of California, died in Vienna, Austria, May 2. He was born at Randolph, Mass., July 15, 1854, and graduated from Brown University in 1875. For the next four years he was a teacher of the classics in the Providence, R. I., High School, and then was instructor at Brown. He went abroad in 1881 and studied at Leipzig, Heidelberg, Jena, Berlin, and Greece. He returned to America in 1885 to serve as instructor at Harvard and in 1896 went to Cornell University where he was professor of comparative philology, and two years later he became professor of Greek in addition. He served as a professor in the American School of Classical Studies at Athens, 1895–96, and was lecturer at Harvard University in 1898. He held the presidency of the University of California from 1899 until 1919. In 1909–10 he was Roosevelt Professor at the University of Berlin. When Professor Wheeler retired as the active head the enrollment of the University of California had reached nearly 20,000. He had honors conferred on him by almost all the great universities of the United States, and Heidelberg and Athens. He was the author of a number of scientific and educational works.

WHEELER, WAYNE BIDWELL. American lawyer and general counsel of the national Anti-Saloon League, died at Battle Creek, Mich., September 5. He was born in Brookfield, Ohio, Nov. 10, 1869, and was educated at Oberlin College, where for nearly six years he paid his expenses by doing janitor's work, peddling books and rug-making machines and teaching in rural summer schools. He received an LL.B. degree from Western Reserve University in 1898. When a student at Oberlin young Wheeler was brought to the attention of the Reverend Dr. Howard H. Russell, one of the founders of the Anti-Saloon League, who was in search of an assistant. In May 1893 he accepted the position offered by Dr. Russell, and until his death he served on the staff of the League, in both an administrative and legal capacity. He became a resourceful leader in the political activities of the organization especially in such campaigns as it undertook against Governor Myron T. Herrick. Mr. Wheeler became a national figure and won more than 2000 saloon cases, appearing often for the League before the United States Supreme Court. One of his many appearances before that tribunal was in the argument on the constitutionality of the Webb-Kenyon act.

When appointed counsel for the national Anti-Saloon League Mr. Wheeler moved to Washington and soon met opposition from the League's manager, Dr. Dinwiddie, with the result that Mr. Wheeler was sustained by the higher authorities of the League and Dr. Dinwiddie left the organization. Subsequently Mr. Wheeler directed the national political activities as well as the legal affairs of the League. He had a large part in the drafting of the Volstead act and in selecting as its introducer the Minnesota representative whose name it bears.

In June, 1926, when he was on the stand before the Senate select committee on campaign expenditures, Mr. Wheeler admitted that the Anti-Saloon League had spent $35,000,000 to make the United States dry, and during the years 1917 and 1918 the organization disbursed $2,500,000 a year The outcry over poison alcohol brought Mr. Wheeler's name to the forefront again during the winter of 1926 when he insisted that alcohol must be made unfit for drinking. Mr. Wheeler was a member of the executive committee of the National Legislative Council of America, a member of the American Society of International Law and the American Academy of Political and Social Science. He was the Author of *The Federal and State Laws Relating to the Liquor Traffic.*

WHITE, Frank. An American writer and lecturer on law, died in New York City on November 28. He was born in Deposit, N. Y., in 1858. After his admission to the bar in 1879 he began practice in Albany, N. Y. In 1905 he was lecturer on corporation law in Albany Law School, retaining that post for 20 years. Since 1925 he had lectured on the same branch of the law at the New York University Law School. His book, *White on Corporations,* is highly regarded by lawyers and legal teachers, the tenth edition being issued shortly before his death. He also wrote *White's Manual for Business Corporations* and was co-editor of *Dill on New Jersey Corporations.*

WHITE, Henry. An American diplomat, died at Lenox, Mass., July 15. He was born in Baltimore, Md., Mar. 29, 1850, and was educated in private schools in the United States and France. He entered the diplomatic service in 1883 as secretary of legation at Vienna, and was transferred to London the year following as second secretary of the embassy, being promoted to secretary in 1886. In 1887–88 he represented the United States at the international Conference in London which abolished sugar bounties. He was recalled by Cleveland in 1893, but in 1897 was reappointed secretary at London under McKinley, and remained there until 1905. After serving as ambassador to Italy, Mr. White was appointed ambassador to France by President Roosevelt in 1907, remaining there until 1909 when his resignation was accepted by President Taft. In 1918 he was appointed by President Wilson to serve on the American Peace Commission, and when the Treaty of Versailles was signed in 1919 Mr. White's signature appeared directly after those of President Wilson and Secretary of State Lansing. Ambassador White received the honorary degree of Doctor of Laws from Johns Hopkins University and St. Andrews University, Scotland, in 1915, and from Harvard in 1917.

WHITE, Israel Charles. American geologist, died at Baltimore, November 24. He was born in Monongalia County, W. Va., Nov. 1, 1848, and studied at West Virginia University and at Columbia University. Entering geological work, he became assistant geologist of the second geological survey of Pennsylvania, 1875–84 and was the author of eight reports in connection with this work. In 1877 he was appointed professor of geology in West Virginia University, a position he held until 1892, when he resigned to assume charge of a large petroleum business. In 1897 he become State geologist for West Virginia, a position he held at the time of his death. He was consulting geologist for the Baltimore & Ohio R. R. Co., and for the Hope Natural Gas Co. He was chief of a coal commission that went to Brazil in 1904 and for two years made a study of mineral deposits in that country. Dr. White was a specialist in coal, petroleum, and natural gas, and made many discoveries in connection with the occurrence and development of these products. He was for many years treasurer of the Geological Society of America and in 1920 served as its president. He was president of the American Association of Petroleum Geologists in 1919–20, and vice president of the American Association for the Advancement of Science, 1896–97. In 1906 he was a member of the National Advisory Board on Conservation appointed by President Roosevelt. He was honored with the degree of LL.D. by West Virginia University in 1919 and with that of D.Sc. by the University of Pittsburgh in 1921. Dr. White presented to the city of Morgantown, W. Va., and to West Virginia University in 1900 coal land in Marion County of an estimated value of $3,000,000, the revenue to be divided equally between the city and the University.

WHITE PINE BLISTER RUST. See Botany.

WHITFIELD, Henry Lewis. Governor of Mississippi, died at Jackson, Miss., March 18. He was born at Brandon, Miss., in 1869. He worked on farms and taught in country schools during his youth, and graduated from Mississippi College in 1895. After a course of law study at Millsaps College he became State Superintendent of Education from 1898 to 1907, and for the ensuing 13 years was president of the Mississippi State College for Women. He was elected Governor in 1923 on the Democratic ticket.

WHITNEY, Milton. An American agriculturist and soil expert, died in Washington, D. C., November 11. He was born in Baltimore Md., on Aug. 2, 1860, and educated in the common schools and at Johns Hopkins, where he took a special course in chemistry. He became superintendent of the experimental farm of the North Carolina Experimental Station 1886–88, was professor of agriculture at the University of South Carolina 1888–91, and chief of the Bureau of Soils in the United States Department of

Agriculture since 1894. He was the author of *Soils and Civilization.*

WHOOPING COUGH. There is considerable evidence that this acute contagious disease, which is known to be due to a specific microorganism and which destroys much life by paving the way for acute broncho-pneumonia, owes much of its distressing symptomatology to a factor which has nothing in common with its infectious element. In other words, this affection, as far as its harassing paroxysms of cough are concerned, has been placed under the so-called allergic diseases (see ALLERGIC DISEASES) along with bronchial asthma and hay fever. It lately has been learned that a child in the early period of whooping cough—when there can be no likelihood of a spontaneous arrest—can be freed almost immediately of its paroxysms of cough by placing it in the allergic chamber; and that after a sojourn of from 4 to 7 days in the latter the cough permanently disappears. It is true that at the time of writing only a small number of children had been subjected to this test, but the results were so startling and unique that hardly any doubt can remain that a notable advance has been made in the treatment of children's diseases, and one which will be peculiarly welcome because little promise has ever been held out of conquering whooping cough by serums and antitoxins.

WICKSTEED, The REVEREND PHILIP HENRY. British economist, died at Childrey, Berkshire, on March 18. He was born in Leeds, Yorkshire, October 25, 1844, and was educated at University College, London, and at New College, Manchester. He followed his father into the Unitarian ministry in 1867. From 1874 until 1897 he was minister at Little Portland Street Chapel in London and it was during these years that his sermons, lectures and translations made him well known. From 1887 to 1918 he was a lecturer for the university extension movement, his courses being principally on political economy. His publications include: *Dante: Six Sermons* (1880); *The Alphabet of Economic Science* (1888); *Henrik Ibsen* (1892); *The Common Sense of Political Economy* (1910); *Dante and Aquinas* (1913); and *The Reactions Between Dogma and Philosophy* (1920).

WIGHT, FRANK CLINTON. An American engineer and editor, died at Summit, N. J., September 18. He was born in Washington, D. C., Feb. 26, 1882. After studying at Columbia University, 1899 to 1901, he entered Cornell and received the degree of civil engineer in 1904. In 1907, after several years of work in the field, he became associate editor of *Engineering News*, served as its managing editor from 1912 to 1917. He continued his services with the enlarged and consolidated publication, *Engineering News-Record*, and was appointed its editor in 1924.

WILLIAM AND MARY, COLLEGE OF. A coeducational college at Williamsburg, Va.; founded in 1693. The enrollment for the autumn semester of 1927 was 1203, of whom 570 were women and 633 were men. The summer session of 1927 had 847 students. There were 70 members on the faculty. The college had productive funds to the amount of $147,637, and the income for the year was $581,251. The library contained 50,000 volumes. President, Julian A. C. Chandler, Ph.D.

WILLIAMS, SIR RALPH CHAMPNEYS. A British explorer and administrator, died in London on June 22. He was born at Anglesey, Wales, Mar. 9, 1848. After leaving Rossall School his occupation until he was almost 40 years of age was travel and exploration in distant countries. He explored and hunted in Australia, Patagonia, Canada and Africa until his appointment in 1887 as consular agent in the Transvaal. He subsequently held administrative posts at Barbados, Bechuanaland and the Windward Islands, and finally ended his official career as governor of Newfoundland, 1909–13. His published works include: *The British Lion in Bechuanaland* (1887), and *How I Became a Governor* (1914).

WILLIAMS COLLEGE. A non-sectarian college for men at Williamstown, Mass.; founded in 1793. The enrollment for the autumn of 1927 was 815, of whom 812 were undergraduates and three graduate students. There were 79 members on the faculty, of whom five were absent on leave and 12 were new members. The productive funds amounted to $5,427,493, and the income for the year 1926–27 was $700,303. The library contained 120,500 volumes and 20,000 pamphlets. During the year the erection of a new gymnasium was commenced, and Lehman Hall, a new dormitory, was also begun. President, Harry Augustus Garfield, LL.D., L.H.D. See POLITICS, INSTITUTE OF.

WILLISON, SIR JOHN STEPHEN. A Canadian journalist, died in Toronto on May 27. He was born in Huron County, Ontario, Nov. 9, 1856, and educated in the local public schools. He engaged in journalism and for several sessions was parliamentary correspondent of the Toronto *Globe*. In 1890 he became editor-in-chief of this paper. In 1902 he became editor-in-chief of the Toronto *News*, and in that position contributed largely to the defeat of the Taft-Fielding reciprocity agreement of 1911 and the downfall of the Laurier administration. He was elected president of the Canadian Press Association in 1900, and in 1910 was appointed Canadian correspondent of the London *Times*. In 1913 he received a knighthood. He published: *The Railway Question in Canada* (1897); *Sir Wilfrid Laurier and the Liberal Party: A Political History* (2 vols., 1903); *The United States and Canada* (1908); *The New Canada* (1910), and *Personal and Political Reminiscences* (1914).

WILSON AWARDS. See WOODROW WILSON AWARDS.

WINDISCH-GRAETZ, PRINCE ALFRED OF. Austrian prime minister, died in Vienna on November 24. He was born in Prague Oct. 31, 1851, and belonged to one of the oldest feudal houses of the former Austro-Hungarian Empire. He was premier of Austria-Hungary in 1893–95.

WINDWARD ISLANDS. The name applied to a group of islands in the West Indies, comprising Grenada, St. Vincent, and St. Lucia, together with the Grenadines (which are one-half under Grenada and one-half under St. Vincent); forming the eastern limit of the Caribbean Sea between Martinique and Trinidad; a British possession. (See articles on the islands mentioned above.) Each of the islands is under its own government, but they are united for certain common purposes and have a court of appeals. Governor and commander-in-chief in 1927, Sir Frederick Seton James.

WIRELESS TELEGRAPHY. See RADIO TELEGRAPHY AND TELEPHONY.

WISCONSIN. POPULATION. Acording to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 2,632,067. The estimated population on July 1, 1927, was 2,918,000. The capital is Madison.

AGRICULTURE. The following table presents the acreage, production and value of the principal crops in 1926 and 1927:

Crop	Year	Acreage	Prod. bu.	Value
Hay	1927	3,651,000	7,286,000 [a]	$89,886,000
	1926	3,596,000	6,043,000 [a]	88,839,000
Corn	1927	2,100,000	68,250,000	57,330,000
	1926	2,119,000	73,106,000	54,830,000
Oats	1927	2,422,000	93,247,000	43,826,000
	1926	2,577,000	96,638,000	38,655,000
Potatoes	1927	260,000	23,920,000	20,332,000
	1926	230,000	27,140,000	32,568,000
Barley	1927	620,000	21,390,000	16,042,000
	1926	521,000	17,974,000	11,683,000
Rye	1927	238,000	4,046,000	3,641,000
	1926	256,000	3,840,000	3,226,000
Tobacco	1927	31,000	31,620,000 [b]	6,008,000
	1926	29,000	33,350,000 [b]	4,602,000
Wheat, winter	1927	73,000	1,716,000	2,008,000
	1926	65,000	1,339,000	1,674,000
Wheat, spring	1927	72,000	1,426,000	1,668,000
	1926	63,000	1,260,000	1,588,000

[a] tons, [b] pounds.

MINERAL PRODUCTION. Pig iron formed the argest single item in point of value in the mineral production of 1925, and pig iron production further increased in 1926, being 235,507 long tons for 1926, as against 226,712 tons for 1925; in value, $5,034,012 for 1926 and for 1925, $4,836,952 for 1925. The mining of iron ore also increased, being 1,238,885 long tons for 1926; for 1925, 933,214 long tons. The product had a value, for 1926, of $3,178,156; for 1925, of $2,260,388. The important lime industry of the State was less active in 1926, shipments of lime producers being 215,000 short tons, as against 244,903 short tons in 1925; in value, $1,886,000 for 1926 and $2,204,504 for 1925. Stone production was large, being 2,541,360 short tons in 1925, the latest year of available records, and in 1924, 2,221,910 short tons; in value, $4,208,201 in 1925 and in 1924, $4,087,113. Zinc was produced in 1926 to the total quantity of 26,800 short tons, as compared with 20,230 short tons in 1925; in value, $4,020,000 for 1926 and $3,074,960 for 1925. Clay products totaled $1,180,496, in 1925 and in 1924, $1,063,164. The total mineral production of the State in 1925, duplications eliminated, was $19,205,380; in 1924, $15,796,720.

FINANCE. As reported by the U. S. Department of Commerce, payments for maintenance and operation of general departments of the State government in the fiscal year ending June 30, 1926, were $28,254,072; their rate per capita was $9.86. They included $5,277,906 apportioned or education. Totals not included in the above, of $130,459 in interest and of $9,173,072 in permanent improvement outlays brought the aggregate of State expenditure to $37,557,603. Of this, $10,676,213 was for highways; $3,490,07 being for maintenance and $7,185,506 for onstruction.

Revenue receipts were $40,313,452; or per apita, $14.07. Of their total, property and speial taxes yielded 41.5 per cent, attaining a per apita rate of $5.84. Earnings of departments and compensation paid the State for officials' services furnished 8.5 per cent of revenue; 37.2 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on June 30, 1926, was $1,763,700, or $0.62 per capita. Property subject to ad valorem taxation bore a valuation of $516,994,450. State taxes levied thereon were $7,141,180, or $2.49 per capita.

TRANSPORTATION. The total number of miles of railroad line in the State on Jan. 1, 1927, was 7374.77. There were built in 1927, as reported by the *Railway Age*, 25 miles of second track.

EDUCATION. State aid to schools was materially extended. An equalization act was passed, providing $5,800,000 for distribution in proportion to the number of teachers engaged by each district, and additional State aid was authorized, to be determined by the ratio of the number of teachers in a district to the assessed valuation of its taxable property. Physically handicapped children were provided with school transportation. The school code of the State was revised.

According to figures covering the scholastic year 1925–26, the school population of the state was reckoned at 877,792. There were enrolled in the public schools 513,456 pupils. Of these, 414,483 were in the elementary schools and 98,973 in high schools. The year's total of expenditure on public school education was $49,473,939. Salaries of teachers averaged $1305.

CHARITIES AND CORRECTIONS. The State Board of Control, as functioning in 1927, managed the charitable, mental and tubercular curative, correctional, reformatory, and penal institutions of the state. It supervised county tubercular sanatoria, insane asylums, jails, and poor houses and likewise the child-care and child-placing agencies. It served as a commission in lunacy, a parole board and a board of guardianship of dependent and neglected children. Hospitals under its management, with their populations on Dec. 1, 1927, were: Wisconsin State Hospital for the Insane, 746; Northern Hospital for the Insane, 645; Central State Hospital (criminal insane), 159; Wisconsin Memorial Hospital (insane), 273; Northern Wisconsin Colony and Training School (feeble minded), 1202; Southern Wisconsin Colony and Training School (feeble minded), 369; Wisconsin State Sanatorium (tubercular), 157; Tomahawk Lake Camp (convalescing tubercular), 20. Penal institutions were: Wisconsin State Prison, 993; Wisconsin State Reformatory, 557; Industrial Home for Women, 103. Correctional-educational institutions were: Industrial School for Boys, 391; Industrial School for Girls, 200. Educational institutions for the physically handicapped were: Wisconsin School for the Deaf, 195; Wisconsin School for the Blind, 131; Workshop for the Blind, 41; State Public School (crippled, neglected and dependent children), 440.

LEGISLATION. The Legislature convened in regular biennial session in January. The session lasted for some five months, and was the second longest in the history of the state; owing to dissension between the legislative majority, and the governor, much of the programme of lawmaking failed of passage, and revenue measures were judged insufficient to meet the appropriations made. The state income tax law was revised to the effect that payers with fluctuating incomes might base their payments on the average incomes of two or three years, the reckoning beginning with the 1926 income. Instead of income exemptions previously allowed for the individual payer, for wife and for dependent children, there was substituted a tax credit of about 1 per cent of the previous exemption, this credit to be deducted from the payer's total tax. As the tax rate continued graduated according to income, the change was calculated to oblige the payer to yield on the average several dollars more each year. By statute it was made necessary after Jan. 1, 1928, for drivers of motor vehicles in the state to obtain operators' licenses, which might not be granted to persons physically or mentally incompetent or to minors under 16 years of age.

Political and Other Events. The State tax law, in such of its provisions as had empowered the municipalities to levy an ad valorem tax on National Bank capital, was declared by the United States Supreme Court March 21 to be unconstitutional. The banks had opposed the tax for several years, refusing to pay it in advance of judicial settlement of their contention. Milwaukee alone claimed $900,000 as due it. Through the decision the municipalities lost their claims. National banks in Milwaukee offered the city September 21 a voluntary payment of $235,000 as a self-assessed contribution to government costs, which a committee of the city council accepted. The State Supreme Court June 10 held unconstitutional the act of 1925 prohibiting the manufacture and the sale of oleomargarine mingled with milk or milk fats to render it more like real butter. The state water power statute giving the State Railroad Commission authority to control dam construction and repair by the issue of permits was found valid May 31, by the United States Supreme Court.

The Highway Commission reported in November that in the season just closed 1740 miles of surfaced highway had been built in the state, the highest number in any year up to then, and that maintenance and construction expenses of the state highway system for the year had totaled $10,784,546. The State Board of Health rendered in April a report on a two years' survey of the water supplies, sewage systems and industrial waste disposal arrangements.

At Milwaukee the county board of supervisors awarded a prize for a court house design to a New York architect, Albert Randolph Ross, as winner of a public architectural competition. Opponents of the court house project, which had been approved by popular vote in 1920 and later, in 1925, rejected, brought action in courts to prevent the retaining of the architect, asserting that the execution of his plan might cost as much as $30,000,000. Judge Fowler, at Fond du Lac October 28, denied an injunction. The practice known as "ambulance chasing," which consists in the solicitation of business by attorneys from persons having occasion to bring suit for damages, chiefly in accident cases, was investigated by a body of three circuit judges, in accordance with the petition of the Lawyers' Club of Milwaukee County. The judges ordered change of attorneys in some 200 cases where champerty was alleged or established.

Officers. Governor, Fred R. Zimmerman; Lieutenant Governor, Henry A. Huber; Secretary of State, Theodore Dammann; State Treasurer, Solomon Levitan; Attorney General, John W. Reynolds; State Superintendent of Schools, John Callahan.

Judiciary. Supreme Court: Chief Justice, Aad J. Vinje; Associate Justices, Marvin B. Rosenberry, Franz C. Eschweiler, Walter C. Owen, Christian Doerfler, Charles Crownhart, E. Ray Stevens.

WISCONSIN, University of. A State institution of higher education at Madison, Wis.; founded in 1848. The enrollment for the autumn of 1927 was 8942, distributed as follows: letters and science, 6514; engineering, 962; agriculture, including home economics, 724; law, 292; medicine, 255; music, 154; library, 41. For the summer session the enrollment totaled 5165, with the following distribution: letters and science, and medicine, 4387; engineering, 209; agriculture and home economics, 295; law, 109; music, 116; library, 49. In the autumn of 1927 the faculty numbered 1202, of whom 279 were new members. The productive funds of the University amounted to $892,148.68, and the income for 1926–27 to $8,343,784 93. The library contained 771,000 volumes and 378,000 pamphlets. During the year the course in commerce and the course in journalism were changed to the school of commerce and the school of journalism, with two years of letters and science work required for entrance, and a new experimental college, under the direction of Dr. Alexander Meiklejohn, formerly president of Amherst College, was opened with an enrollment of 119 Students. President Glenn Frank, M.A., Litt.D., L.H.D., LL.D.

WOMAN'S CHRISTIAN TEMPERANCE UNION. A non-partisan and non-sectarian national movement which has as its purpose the protection of the home by the abolition of the liquor traffic. It has branches in every state in the Union, in the District of Columbia, Alaska, and the insular possessions, and a young people's branch comprising both young men and women, who are united for temperance and prohibition. The official organ of the Union is *The Union Signal*, and *The Young Crusader* is published for boys and girls. The officers in 1927 were: President, Mrs. Ella A. Boole; vice president at large, Mrs. Ida B. Wise Smith; corresponding secretary, Mrs. Anne Marden De Yo; recording secretary, Mrs. Nelle G. Burger; treasurer, Mrs. Margaret C. Munns. The main headquarters are at Evanston, Ill.; the legislative headquarters are at the Hotel Driscoll, Washington, D. C.

WOMEN IN INDUSTRY. The Women's Bureau of the U. S. Department of Labor is not only the centre for information of progress in this field but of activity as well. Despite continually reduced budgets this Bureau was worked to improve the economic status of the eight and one-half million women gainfully employed. The 1927 budget was $100,000.

During the year 1927 the Women's Bureau reported that Arizona's legislature amended its labor code to provide for women a six-day and 48-hour week. New York, too, passed a law, affecting factories and mercantile establishments, to provide women an eight-hour day and a 48-hour week. A week of 49½ hours is permitted for 5½ working days. An additional 78 hours of overtime annually is permitted.

Supplementing the 18 State surveys already completed, the Bureau published three addition-l survey's during the year, viz., Women in Delavare Industries; Women in Tennessee Industries; Women in Mississippi Industries.

Mississippi. This survey was made in 1925. It ncluded the work of 2853 women (one-fifth of vhom were negro) employed in 81 establishnents, in 25 cities. Of the women surveyed, wo-thirds worked in factories, one-fifth in stores, nd the remainder in laundries. It was found hat more than 35 per cent of the women had a vorking day of more than 10 hours. Only three er cent had a day of 8 or less than 8 hours. 'or white women, the median of weekly salaries vas $8.60; for negro women it was $5.75. 'wenty-two per cent of the women were maried. For the white women the following was he distribution: one-sixth were widowed, seprated or divorced. More than one-third of the egro women fell into this classification. As or age distribution, 38 per cent of all the vomen fell between 20 and 30 years, while 14.5 er cent of the white and 18.5 per cent of the egroes were 40 years and over.

Tennessee. This study was made in 1925 and ncluded 16,596 women of whom 8.6 per cent vere negro and almost all the rest native born vhite women. In 28 cities 216 plants were examined, in which the employees were distributed s follows: four-fifths in factories, one-tenth in tores, the remainder in laundries. As for hours, 5 per cent of the women had a working day of 0 or more, while only 6 per cent had a day of hours or less. For white women, the median f weekly earnings was $11.10 as against $6.95 or negro women. For both white and negroes, 0 per cent were married, 20 per cent were vidowed, separated or divorced, and a little ınder 50 per cent were single. The ages were s follows: 68 per cent were under 30 years (at least half being under 25 years) and 15 er cent were 40 years and over.

Delaware. This study, made in 1926, included 4176 women, of whom 6.5 per cent were negro and a slight proportion were foreignorn. In 29 cities 146 establishments were tudied in which the workers were distributed s follows: 56 per cent were in factories, 26 er cent were in canneries, 11 per cent were n stores, the remainder were in laundries, hotels nd restaurants. Less than 10 per cent of the vomen in factories, stores and laundries worked s much as 10 hours daily; 15 per cent had a ay of 8 hours or less. For white women in facories, stores and laundries the median of weeky earnings was $11.05; for the white women in otels and restaurants it was $10.15; for those n canneries it was $9.40. For negro women in anneries the median wage was $5.55. One-third f the white women were married and one-eighth vere widowed, separated or divorced. Sixty per ent of the white women and 58 per cent of he negroes were under 30 years (14.5 per cent f the white and 11.7 per cent of the negroes eing under 18 years).

Industrial Accidents. The Women's Bureau ublished a study of the effects of industrial accidents to women in the States of New Jersey, hio, and Wisconsin over the period July 1, 919, to June 30, 1920. It was found that in ew Jersey there had been 1096 compensable ccidents to women, 1545 in Ohio and 644 in Wisonsin. The majority of the accidents had ocırred in manufacturing industries, while 15 per ent of the injured women had worked as clerks, etc. At least one-half of the accidents to women in manufacturing establishments were due directly to machinery. The following were the relative hazards of the different industries: in the metal trades there were 40 accidents per 1000 employees over the year, in iron and steel plants there were 27 accidents per 1000, and in the food-product plants 22 accidents per 1000 women employees.

Of the 3285 cases examined there had been 15 fatalities and 536 permanently disabled. Of the latter, 385 women were interviewed to ascertain what adjustments had been effected. The report said: "Almost half of these were responsible for the support of other persons in addition to themselves. Over one-third of the women had been working less than six months at the occupations they were engaged upon when injured. Two-fifths of the women were disabled for their former work; one-tenth were disabled for all available work. Of those who returned to industry 79.6 per cent went back to their former employer, but almost one-fourth of these were laid off soon or found it necessary to quit on account of the disability. Over one-fourth of the women who returned to work had not at any time since the accident earned as much as they had earned before."

Turnover. The Women's Bureau published a study of the change of jobs of 97 women who had attended the Bryn Mawr summer school in 1925. About 50 per cent of these women had been in industry 10 years or more and only 14 per cent had been working less than six years. At least three-fifths of the women had held their positions less than two years, one-fourth for less than one year, and six for less than six months. The histories of some were amusing. One worker was employed successively as follows: as a domestic, in a lamp factory, a noodle factory, glass manufacturing concern, lamp factory, battery factory, domestic service, lamp factory, casket factory.

The report concludes as follows: "Among the industrial factors found conspicuously associated with short jobs are: (1) The seasonal nature of business, (2) the character of management under which production is carried on, and (3) the monotony and routine of the work itself. The last of these appears to have become permanently established in modern machine industry. On the other hand, changes affecting the first two factors are now taking place. Constant effort is being made to regularize industry, and in many instances dull periods have been shortened and sometimes eliminated."

Minnesota. The Industrial Commission of Minnesota published the following wage summaries:

Wages per week	*Number*	*Per cent*
Less than $12	3,457	10.2
$12 and under $15	9,440	27.9
$15 and under $20	11,688	34.5
$20 and over	9,249	27.4

Ohio. The Information Bureau on Women's Work (Toledo) published a report based on a study of women's wages in Ohio. A total of 281,112 women were examined, of whom 176,600 were "wage earners," 32,553 saleswomen, and 71,959 in clerical occupations. Over one-third of the women were working for less than $15 a week although (says the report) "studies of the cost of living have shown amounts ranging from $17 a week in the smaller towns, to $21 a week for the larger centres, as necessary for a 'health and decency' standard."

WOMEN'S CLUBS, General Federation of. An organization founded in 1889 and chartered by Act of Congress Mar. 3, 1901. It is composed of local clubs in the United States and other countries, and its purpose is "The Betterment of Life." In addition to local clubs there were, in 1927, seventeen national organizations and sixty-four clubs, in foreign and territorial countries, affiliated with the Federation. It is governed by a General Board, and the work is divided into eight departments: American citizenship; the American home; education; fine arts; international relations; legislation; press and publicity; and public welfare. Other activites, not in departments, include: Federation extension through the organization of clubs in rural districts and the organization of juniors in senior clubs; contact with clubs and organizations in other countries; medical scholarship loan; exchange Pan-American scholarship; coöperation with war veterans; and work for better films in motion pictures. In 1927 a survey of adult illiteracy with a view to its elimination was made. The official organ is the *General Federation News*. Headquarters are at 1734 N Street, N. W., Washington, D. C. Mrs. John D. Sherman was president and Miss Josephine Junkin, director of headquarters.

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM. See Peace and Peace Movements.

WOMEN'S PEACE UNION. See Peace and Peace Movements.

WOOD, Leonard. An American soldier and colonial administrator, died in Boston, Mass., on August 7. He was born in Winchester, N. H., Oct. 9, 1860, the son of Charles Jewett Wood, an eminent physician. Leonard Wood's early schooldays were spent in Pocasset, Mass. and at Pierce Academy, Middleboro, Mass. He then went to the Medical School of Harvard University and was graduated a doctor of medicine in 1884. For a year thereafter he was house surgeon at the City Hospital, Boston, and then practiced medicine in that city. He was appointed an assistant surgeon in the U. S. Army on Jan. 5, 1886, and the same year was assigned to duty under Captain, afterwards General, H. W. Lawton in a campaign against the Apache Indians, under Chief Geronimo. It was Lawton's task to track down the hostile Indians and Lieutenant Wood was foremost in the long chase of 2400 miles. In this campaign he served in the line as a fighting officer, and for his achievements he was awarded the Congressional Medal of Honor. He was promoted to captain Jan. 5, 1891, and served as attending surgeon at several posts and forts in the Southwest, and at the Presidio, San Francisco, and at Fort McPherson, Ga. On the outbreak of the Spanish-American War in 1898, Captain Wood became colonel of a regiment of cowboys and others organized by Theodore Roosevelt, who had resigned as Assistant Secretary of the Navy. In this regiment, the First United States Volunteer Cavalry, soon to be known as the "Rough Riders," Roosevelt was commissioned lieutenant colonel, and the command was among the first organizations sent to Cuba. At the engagements at Las Guasimas and San Juan Hill, Colonel Wood and his regiment played a prominent part and he was promoted on July 8, 1898, to the rank of brigadier general. After the surrender of the Spanish forces at Santiago de Cuba General Wood was made military governor of the city, later being given the command of the Department of Santiago.

On December 7, he was promoted to the rank of major general of volunteers, and on Dec. 20, 1899, he arrived at Havana to be military governor of Cuba, succeeding General John R. Brooke.

A great achievement of General Wood was the elimination of yellow fever. As a result, it was stated, subsequently not a single case of yellow fever originated in Havana. On May 20, 1902, General Wood formally transferred to Tomás Estrada Palma and his associates the government and control of the island and announced that American military occupation of Cuba was ended.

In March, 1903, General Wood was sent to the Philippine Islands to command the Department of Mindanao and to be the civil governor of the newly organized Moro province, comprising the Mohammedan portion of the archipelago. He was made a major general in the regular army Aug. 8, 1903. For three years he labored in these islands and the once turbulent Mohammedan islanders became orderly and loyal. In 1906 he was made commanding general of the entire Philippine Department and held that post until November, 1908, when he returned to the United States to become commander of the Department of the East with headquarters at New York, a command he again held after 1914 after he had served as chief of staff of the U. S. Army. Previous to the entry of the United States into the World War General Wood was active and unceasing in his efforts to promote national defense and preparedness measures. It was his personal influence that resulted in the establishment of civilian training camps of which those at Plattsburg were most conspicuous and successful in training men to become officers.

General Wood was assigned to command the Southeastern Department in 1917, and here he was active in training and commanding the Eighty-ninth National Army Division at Camp Funston, Kansas.

When the Armistice was signed General Wood was training the Tenth Regular Division at Camp Funston. On Jan. 15, 1919, he was assigned to the command of the Central Department with headquarters at Chicago, and on Oct. 5, 1921, he was retired. General Wood was a candidate for the Republican nomination for the presidency in 1920 but was defeated by Senator Warren G. Harding. General Wood went to the Philippines as Governor General in 1921, assuming office on October 15, and he devoted himself to bringing the government into harmony with the ideas of the new administration. The Filipinos had permitted the promising work of leprosy control to fall into a state of inefficiency. On July 26, 1926, General Wood issued an appeal to the United States for private citizens to raise a fund of $2,000,000 to stamp out the disease. At that time he said the plague could be eradicated by 1932 if the fund were raised. This money was to go for the erection of a modern laboratory at the Culion leper colony, south of Manila, and for an endowment to engage competent medical men. Other parts of the endowment were to go for segregation work and the improvement of diet, living conditions and service. See LEPROSY.

Among other reforms in the Philippines was the institution of a rigorously economical government, wherein all waste was cut to a minimum. General Wood was opposed by a growing party in the islands that were vociferous in their demands for immediate independence, and he was hampered greatly by the native assembly.

Before returning to the Philippines General Wood had been elected by the University of Pennsylvania to be its provost, and secured a year's leave of absence from its service. But by the close of 1922 it was evident to him that there was so much to be done in the islands that it would be most unfortunate for him to leave his post at Manila. Accordingly, he resigned as provost of the university and devoted himself to the arduous task before him.

The honorary degree of LL.D. was bestowed upon General Wood by Harvard University in 1899, Williams College in 1902, the University of Pennsylvania in 1903, Princeton University in 1916, the University of the South and the University of Georgia in 1917, the University of Michigan in 1918 and Union College and Wesleyan University in 1919. His published works include: *The Military Obligation of Citizenship* (1915); *Our Military History* (1916); *National Defense* (1917); *Universal Military Training* (1917).

WOODBURY, FRANK W. An American medical writer, died in Philadelphia on May 24. He was born in Philadelphia in 1849, and graduated from Jefferson Medical College in 1877. During his early professional career he translated many French and German medical works and wrote for medical journals. He became assistant and subsequently editor-in-chief of the *Philadelphia Medical Times* and a member of the staffs of other medical journals in Boston and New York. Dr. Woodbury was professor of therapeutics and clinical medicine in the Medico-Chirurgical College from 1880 until 1892. He created and edited with Dr. R. J. Dunglison *The College and Clinical Record.*

WOOD PULP. See FORESTRY; PAPER.

WOODROW WILSON AWARDS. In January Norman H. Davis, president of the Woodrow Wilson Foundation, announced receipt of a special donation of $50,000, to be offered in two awards of $25,000 each to the young men and women of America for the best two essays on "What Woodrow Wilson Means to Me." These awards were independent of the regular Foundation award of $25,000 which was given in 1926 to Elihu Root, for his services to the cause of peace in helping to organize the World Court. The awards were available to any resident of the United States between the ages of 20 and 35. The essays had to be not more than 2500 words in length, and should seek to appraise, not the acts, but the ideals and principles of Wilson, from the personal standpoint of the writer. Partisan political considerations were, therefore, outside the scope of the contest.

Later the Foundation decided to increase the scope of the contest by adding 92 smaller prizes totaling $7000. None of the 10,000 essays submitted was considered worthy of either first or second prizes by the Jury of Award. Third prizes of $100 each were awarded to the writers of fourteen essays "without distinction of place" and the writers of thirty more received honorable mention. The trustees announced that while the decision of the Jury of Award was binding upon the trustees, as well as upon the contestants, the board would consider the matter thoroughly and announce later what was to be done with the fund especially donated for this purpose. Seven men and as many women were chosen as recipients of third prizes.

WOOL. The wool clip of the United States, as estimated by the Department of Agriculture, was 272,453,000 pounds in 1927. This compared with 260,975,000 pounds in 1926, and 253,907,000 pounds in 1925. Wool prices remained on a steady and firm level, fairly profitable to growers. The number of sheep and lambs on farms and ranges at the beginning of 1927 was reported at 41,909,000, an increase of over 2,000,000 head, or 5 per cent, over the preceding year. Imports of combing and clothing wool were approximately 100,000,000 pounds less in 1927 than in 1926. This reflects the decline in use of wool for clothes and the substitution of silk, rayon, and cotton, and the effect on woolen manufactures. A campaign was started to increase the use of wool for clothing, five leading associations uniting to form the Wool Council of America, with plans to bring woolen goods back into popular favor. The Eastern Wool Growers' Association, Inc., was formed with headquarters at Baltimore, through which Virginia, West Virginia, and Maryland growers were expected to market more than 500,000 pounds of wool during the year.

Standards for wool, including twelve grades based on the numerical count system, a refinement of the seven grades previously promulgated by the U. S. Department of Agriculture, were approved by representatives from all branches of the wool industry of America. The range is from 36's to 80's. Prior approval of these grades by the Bradford Wool Federation made possible the conduct of business in the American and British wool trade on the basis of a uniform set of standards. Other European countries indicated a purpose to adopt these grades. A decision of the U. S. Supreme Court in May defined the term "wool commonly known as clothing wool," used in the Emergency Tariff Act of 1921, as covering all wools other than carpet wool. This reversed a decision of the Court of Customs Appeals, which had held that clothing wool was wool used in the carding process, as distinguished from that used in the combing process in the making of cloth.

Conferences between United States officials and members of the wool trade were held to determine upon a classification schedule to be used in the collection of international statistics on wool. This move for a schedule to be used uniformly by the leading wool-producing and consuming countries of the world was the immediate outcome of action taken at the Imperial Conference at London, the recommendations of which were submitted to the United States. The conference agreed upon a classification schedule, including quality, condition, weight, and value of wool passing in international trade, the volume of world woolen stocks to be determined semi-annually as of April 1 and October 1, with monthly reports on imports, exports, and reexports of wool, and a monthly survey of wool consumption by mills.

An Italian synthetic wool recently placed on the market was found on examination to consist of short lengths of fine fibres resembling wool, but it was declared inferior to the real product.

Studies at the Kansas Agricultural Experiment Station showed that silk and wool had a considerably higher protective value against burning of the skin than cotton or linen (*Journal of Agricultural Research*, vol. 35, p. 251.) A German investigator had shown that wool offers more resistance to the disintegrating action of the sun than silk, cotton, or linen. See LIVESTOCK.

WOOLSON, IRA HARVEY. An American civil engineer, died in Chicago, Ill., May 8. He was born in Niagara County, N. Y., Aug. 11, 1856, and was graduated from the School of Mines, Columbia University, in 1885 with the degree of M.E. He afterwards served two years in the New Jersey Geological Survey, and in 1886 returned to Columbia as assistant in assaying and drawing. In 1891, while instructor in mechanical engineering, he developed at the university the testing of fireproof materials, and established special laboratories. He continued in that work for 23 years, being made adjunct professor of civil engineering in 1908. He was the author of many technical articles on fire protection, and was appointed chairman of the building code committee of the Department of Commerce by Secretary Hoover in 1921.

WORCESTER POLYTECHNIC INSTITUTE. A non-sectarian institution for the technical education of men at Worcester, Mass.; founded in 1865. The enrollment for the autumn of 1927 totaled 583, distributed as follows: mechanical engineering, 133; civil engineering, 74; electrical engineering, 171; chemistry, 42; general science, 2; and 161 freshmen, all of whom take the same course of study. The faculty numbered 63. The productive funds of the institute amounted to $2,800,000, and the income for the year to $308,000. There were 29,000 volumes in the library. Sanford Riley Hall, a freshman dormitory, was completed. President, Ralph Earle, Captain, U.S.N., retired, D.Sc., D.Eng.

WORK, BERTRAM G. An American manufacturer, died at St. Moritz, Switzerland, on August 30. He was born in Staten Island, N. Y., Jan. 9, 1868. Leaving Sheffield Scientific School at Yale after his freshman year in 1889, he entered the employ of the Goodrich Rubber Company and won promotion through successive grades until he was elected president of the concern in 1907, a post he held at the time of his death.

WORKMEN'S COMPENSATION. A complete review of this subject, through the legislative sessions of 1926, was presented in a U. S. Bureau of Labor Statistics Bulletin. It was shown here that compensation laws were to be found in all the Canadian provinces and in all the States except 5 and the District of Columbia. The first American compensation laws appeared in 1910; thenceforth the remainder followed rapidly until 1919; only 3 new States were added. In all the States benefits cover fatal as well as non-fatal injuries. (The only exception in the case of fatality benefits is that of Oklahoma.) Medical and surgical benefits are also furnished in all States. In most of the States, benefits are based on stated ratios of the average wages, ranging from 50 per cent in 16 States to 66⅔ per cent in 12. The maximum totals run from $3000 to $7800 for death and from $3000 to $10,000 for permanent total disability. Some States establish no limit at all. All but three States require employers to carry compensation insurance. In 19 States there are State insurance funds while in eight of these the State funds are the only ones permitted to operate.

NEW YORK. The 1927 report of the New York State Industrial Commissioner (for the fiscal year ending June 30, 1926) contains an interesting discussion of the State's insurance fund. The commissioner points out that the State fund is complete in security and coverage and has the confidence of insuring employers. A large proportion of the employers insuring in the beginning of the fund still are carrying policies. For the calendar year 1925 premiums written amounted to $4,246,429, an increase of 9 per cent over 1924. On Dec. 31, 1914, assets of the fund were $654,494; by Dec. 31, 1925, they had increased to $10,304,743. Policies were written at premium rates 15 per cent lower than those of stock-company insurance, and for the last few years the State fund had been paying a stock dividend of 15 per cent, making a net gain of 27¾ per cent over stock-company rates. The fund also carries on inspection, safety service, accident prevention, and rehabilitative work. The State fund's expense ratio is 18 2 per cent, as compared with the 42 per cent ratio of the largest 17 private companies.

This State reported that during the year ended June 30, 1927, 27 boys and girls under the age of 18, and who were illegally employed, were awarded double compensation for injuries received. Nineteen of the children injured were at work on machines which they were specifically prohibited by law from operating. Twenty of the 27 children received some form of permanent disability. By law, the employer alone is responsible for the increased compensation and these 27 cases cost the employers $22,808. The insurance carriers had to pay a like amount.

KANSAS. During the year a revision of the State's compensation act went into effect. It included, among other changes, the following: Administration was transferred from the courts to the Public Service Commission. Coverage was extended to include motor transportation and building work. Death benefits were raised to $4000 and the weekly maximum for disability to $18. Burial expenses were allowed in all cases. Provision was made for permanent loss of use and for permanent partial loss of use of a member, and also for traumatic hernia. An important addition was compulsory insurance.

MASSACHUSETTS. A workmen's compensation commission, reporting on the workings of the law in this state, approved the underlying principle of the law. It suggested the following changes: The inclusion of persons employed in violation of law. That "street cases" be made compensable when the employee was engaged in the furtherance of his employer's business. That occupational diseases be definitely included. That the maximum benefits be increased to $6400. That the maximum weekly allowance be increased to $19. The most important change suggested to the commission was the adoption of a state monopolistic fund, but this the commission rejected. It did recommend increasing the Insurance Commissioner's power over premium rates.

NORTH DAKOTA. In the single year 1926 North Dakota's State insurance fund saved employers $200,052. The actuaries said in their report:

"It costs North Dakota employers through its workmen's compensation fund 11.1 cents to pay $1 benefits to injured workmen. On the insurance company basis it would cost North Dakota employers, through insurance companies, 56.2 cents to pay $1 benefits."

Convicts. In 1927, Maryland and Wisconsin extended their workmen's compensation laws to apply to convicts. These were the first two States to take such action.

United States. The new Federal Longshoremen's and Harbor Workers' Act went into effect July 1. Its purpose is the protecting of longshoremen and harbor workers when the injury occurs on navigable waters, including dry docks. The following groups are excluded: masters and crews of vessels; workers loading, unloading or repairing vessels under 18 tons; Federal and state employees. A United States Employees' Commission is set up to administer the act, and 14 district offices are established. For injury, the percentage of wages is 66⅔, weekly maximum is $25, weekly minimum is $8, the total maximum payment for injury or death is $7500. Death benefits are made up of a portion of the wages, depending upon the number of dependents. Widows, during widowhood, continue recipients of benefits and upon remarriage obtain a lump sum of two years' compensation. A burial allowance of $200 is also granted. Nonresident aliens are entitled to full benefits. Dependents of these, however, are limited to widow and children or one parent. Occupational diseases are included as compensable. Full medical care is provided. There is a maintenance allowance of $10 weekly during the period of rehabilitation. The waiting period is one week, retroactive after seven weeks.

An interesting sidelight on the law's passage is that it extends workmen's compensation into the five Southern States—North Carolina, South Carolina, Florida, Arkansas, Mississippi—that are still without protective legislation. The passage of the Federal Compensation Act now leaves only two groups of employees without protection from accident, seamen and railroad workers engaged in interstate commerce.

It is interesting to note the operation of the Federal act. Commissioner Jerome G. Locke of the New York District announced that by the end of the year more than 5800 accidents to longshoremen and other employees on harbor craft had been reported to his office during the six months of activity (July 1–December 1). Of these, fully 4000 had been settled on the basis of the new law, without a single appeal having been taken to the courts. Of the 5861 cases reported in the year, 17 were fatal and 291 were under the head of improper jurisdiction. Of the 4000 settlements made only 12 were on the basis of formal hearings.

Legislation. No new States, during 1927, joined the roll of workmen's compensation States. There was, however, a considerable amount of supplemental legislation passed. The outstanding features of these laws, in the various States and in the United States, which are abstracted from the December *American Labor Legislation Review*, are reviewed here briefly:

Alaska. Compensation raised to 65 per cent of wages; death benefit raised to $4500; compensation for permanent disability also increased.

California. State fund may insure employers liable under Federal longshoremen's act; agricultural employers and employees are presumed to have accepted the state act unless notice of rejection is given.

Connecticut. Compensable hernia is defined and so is compensable occupational disease. Number of weeks for which compensation payment is made is increased.

Idaho. Public officials are included. On application of employer, agricultural workers and domestic servants may be brought into act. For total disability, where worker has children, minimum weekly compensation is to be $8 for a period of 400 weeks.

Illinois. Payment of death benefits to widow ceases on remarriage if no children exist. Employments where creosote or other preservatives are used are included under act. Death benefits, where there are dependent children, are increased. Compensation for death or injury of an illegally employed minor is increased by 50 per cent. The compensation time for certain injuries is also increased.

Indiana. Weekly minimum and maximum wages are raised to $16 and $30.

Kansas. A new law is reënacted. Law to be administered by a Public Service Commission; employers must insure with an authorized company or become self-insurers; state regulation of insurance companies is provided; death benefit raised to $4000; weekly maximum for death and total disability raised to $18; employers liable for $100 and sixty days of medical care.

Maryland. Minors illegally employed are to receive double compensation. The employer alone is responsible for the extra risk. The act is to cover convicts in the state penitentiary and house of correction.

Massachusetts. Weekly maximum raised to $18 and total maximum payment for total or partial disability raised to $4500.

Michigan. Wage percentage raised to 66⅔ weekly. Weekly maximum raised to $18. Total maximum for disability raised to $9000. Minors between 16 and 18 years illegally employed are to receive double compensation. Alien dependents residing outside the United States and Canada are to receive two-thirds of benefits. Payment to a dependent child ceases at 21 years.

New York. Weekly maximum raised to $25. Maximum allowance for total disability raised to $5000; for partial disability to $4000.

North Dakota. Total maximum payment in case of total disability is limited to $15,000. Death benefit limited to $15,000.

Pennsylvania. Waiting period reduced to seven days. Compensation is raised to 65 per cent of weekly wages; maximum is raised to $15 weekly and minimum to $7. Hernia to be compensable must be reported in 48 hours. Death benefits for dependent children are raised.

Rhode Island. Changes made in length of time payments are to continue for loss of members.

Tennessee. Maximum weekly compensation fixed at $16. Compensation of widow who remarries is to pass to her dependent children.

United States. The monthly maximum for total or partial disability is raised to $116.66 and the minimum for total disability to $58.33. Minimum monthly wage raised to $87.50; maximum to $175. Burial allowance raised to $200.

Vermont. Medical liability increased to $50 for surgical and medical services and $150 for hospital services.

Washington. Compensable hernia is defined. "No payment shall be made to any beneficiary residing in a country with which the United States does not maintain diplomatic relations when such payment is due." The schedule of permanent partial disabilities is increased.

Wisconsin. Inmates of State institutions, permanently disabled during their employment, are to receive upon the discharge the same compensation as if covered by the act. The maximum is, however, $1000. Schedule of benefits for permanent partial disabilities revised.

See also LABOR LEGISLATION.

WORKMEN'S COMPENSATION INSURANCE. See INSURANCE.

WORLD AGRICULTURAL CENSUS. See AGRICULTURE.

WORLD ALLIANCE FOR INTERNATIONAL FRIENDSHIP THROUGH THE CHURCHES. See PEACE AND PEACE MOVEMENTS, under *International Good-will.*

WORLD CONFERENCE ON FAITH AND ORDER. A general meeting at Lausanne, Switzerland, Aug. 3-21, 1927, considered the matters of faith and order on which the various Christian churches disagreed rather than defined conditions for future union. It was attended by over 400 delegates, representing 87 separate Christian churches, including the Orthodox, Old Catholic, Anglican, Lutheran, and Evangelical communions, while the Roman Catholic and British Baptist Churches declined the invitation. Representation was by religions on a basis proportionate to the number of communicants in the churches represented. This conference was an outgrowth of the Universal Conference of the Church of Christ on Life and Work at Geneva in 1920, rather than of the Stockholm Conference of the Church of Christ on Life and Work, which met in 1925, and unlike the latter, which was devoted primarily to seeking coöperation on ethical matters, it dealt with theological subjects. The matters considered had to do principally with faith and with creeds, or a personal confession of one's faith in Christ, and with order, which had to do with an episcopally ordained ministry as against a non-episcopally ordained ministry. The most significant accomplishment of the Conference was the unanimous adoption of a report on "The Church's Message to the World," to which churches all over the world were able to subscribe. It read:

> We, members of the World Conference on Faith and Order, met at Lausanne, August 3-21, 1927, and agreed in offering the following statement to the several Churches as the message of the Church to the world:
>
> (1) The message of the Church to the world is and must always remain in the Gospel of Jesus Christ.
>
> (2) The Gospel is the joyful message of redemption, both here and hereafter, the gift of God to sinful man in Jesus Christ.
>
> (3) The world was prepared for the coming of Christ through the activities of God's Spirit in all humanity, but especially in His revelation as given in the Old Testament; and in the fullness of time the eternal Word of God became incarnate, and was made man, Jesus Christ, the Son of God and the Son of Man, full of grace and truth.
>
> (4) Through His life and teaching, His call to repentance, His proclamation of the coming of the Kingdom of God and of judgment. His suffering and death, His resurrection and exaltation to the right hand of the Father, and by the mission of the Holy Spirit, He has brought to us forgiveness of sins, and has revealed the fullness of the living God and His boundless love toward us. By the appeal of that love, shown in its completeness on the Cross, He summons us to the new life of faith, self sacrifice, and devotion to His service and the service of men.
>
> (5) Jesus Christ, as the crucified and living One, as Saviour and Lord, is also the center of the world-wide Gospel of the Apostles and the Church. Because He Himself is the Gospel, the Gospel is the message of the Church to the world. It is more than a philosophical theory; more than a theological system; more than a program for material betterment. The Gospel is rather the gift of a new world from God to this old world of sin and death; still more, it is the victory over sin and death, the revelation of eternal life in Him who has knit together the whole family in heaven and on earth in the communion of saints, united in the fellowship of service, of prayer, and of praise.
>
> (6) The Gospel is the prophetic call to sinful man to turn to God, the joyful tidings of justification and of sanctification to those who believe in Christ. It is the comfort of those who suffer; to those who are bound it is the assurance of the glorious liberty of the sons of God. The Gospel brings peace and joy to the heart, and produces in men self-denial, readiness for brotherly service, and compassionate love. It offers the supreme goal for the aspirations of youth, strength to the toiler, rest to the weary, and the crown of life to the martyr.
>
> (7) The Gospel is the sure source of power for social regeneration. It proclaims the only way by which humanity can escape from those class and race hatreds which devastate society at present, into the enjoyment of national well-being and international friendship and peace. It is also a gracious invitation to the non-Christian world, East and West, to enter into the joy of the living Lord.
>
> (8) Sympathizing with the anguish of our generation, with its longing for intellectual sincerity, social justice, and spiritual inspiration, the Church in the eternal Gospel meets the needs and fulfills the God-given aspirations of the modern world. Consequently, as in the past, so also in the present, the Gospel is the only way of salvation Thus, through His Church, the living Christ still says to men, "Come unto me! He that followeth me shall not walk in darkness, but shall have the light of life."

Reports were also made and accepted on "The Nature of The Church," on "The Gospel of the Church of Christ," on "The Ministry," and on "The Sacraments." These reports were not adopted, however, but were received for presentation to the various churches represented, in accordance with the provision of the preamble that no action should be taken by the Conference without a unanimous vote. In addition, the Orthodox, the Lutheran, the Reformed Churches of Switzerland, France, Holland, and Belgium, and the Friends, drew up statements defining their own positions, which helped to clarify the issues, and which were to serve as a basis of mutual understanding. The women members of the Conference presented a report devoted to the part which women should hold in the councils and in the work of the church in the future. The Conference also recognized the duty of Christians to unite for moral service to the world.

Committees were appointed to consider such questions as "The Relation of the Existing Churches to the Unity of Christendom," the attitude of the churches toward the Sacraments, and the problem of agreeing on some form of joint or simultaneous communion—until such time as full inter-communion should be realized—as a means of effecting unity of the Church in worship.

Among those who were active in the meeting were: Bishop Charles Gore, Church of England, who was instrumental in calling the meeting and arranging its programme; Dr. Alfred Ernest Garvie, Congregationalist, and former president of the National Free Church Council, England, who was in large measure responsible for the success of the Conference; Bishop Francis J. McConnell, Methodist Episcopal Church, Pittsburgh, Pa.; Professor Adolph Deissmann, University of Berlin; Bishop Charles H. Brent, of Western New York; Pastor Wilfred Monod, Professor of Protestant Theology, University of

Paris; Dr. S. Parkes Cadman, president of the Federal Council of Churches of Christ, Brooklyn, N. Y.; The Most Reverend Nathan Söderblom, Archbishop of Upsala, Sweden; Bishop Nicholai Velimirovic, Bishop of Ochrida, Serbia; Metropolitan Chrysostom, Archbishop of Greece, Athens; the Right Reverend Dr. Arthur C. Headlam, Bishop of Gloucester, England; Bishop James Cannon, Methodist Episcopal Church, South; the Most Reverend Metropolitan Germanos, Eastern Orthodox Church, London; Bishop W. T. Manning, Protestant Episcopal Church, New York; Bishop Edwin James Palmer, Bishop of Bombay; and Dr. Peter Ainslie, Baltimore. Bishop Brent was chairman and Dr. Garvie vice chairman of the Conference.

WORLD COURT. Almost at the same time that the U. S. Senate, on February 9, defeated by a vote of 59 to 30 a proposal to rescind the United States reservations to the World Court (see YEAR BOOK for 1926) the news arrived that Great Britain had informed the League of Nations in substance that it could not accept them and particularly the fifth, on advisory opinions. This was in accord with the document published at Geneva in 1926, in which all the nations there represented expressed their reluctance to accept the American reservations. Since in his speech at Kansas City on Nov. 11, 1926, President Coolidge had declared that he would not submit the matter to the Senate again unless all the reservations were accepted without change, it was commonly asserted on all sides that the issue was dead in the United States. It was predicted that the pacifist groups would begin work for the abolition of the reservation. There was a widespread opinion that seemed solidly against any such action, on the ground that the World Court is not an independent judicial tribunal but an adjunct of the League of Nations.

It was quite true there was a widespread feeling in the United States that foreign alliances might prove to be entangling, and therefore dangerous, but there seemed to be little doubt but that there was a substantial body of public opinion, that was constantly growing, that the sane and reasonable method of settling disputes was through the arbitration of reason as embodied in a court procedure rather than by the arbitrament of arms.

In his address as president of the American Society of International Law, in April, 1927, Charles E. Hughes pointed out that the difficulties that have arisen with respect to the adherence of the United States to the protocol of signatures of the statute of the Permanent Court are concerned chiefly, if not exclusively, with the giving of advisory opinions in relation to disputes and questions in which the United States has or claims an interest. He stated:

> Regrettable as it is that an apparent deadlock has been reached, there is no gain in blinking the facts. The Senate adopted a reservation providing explicitly that the Court shall not entertain, without the consent of the United States, any request for an advisory opinion touching such disputes or questions. That reservation has not been accepted, and a counter-proposal has been made by a Conference of Signatories of the Protocol. That Conference deemed the opinion of the Permanent Court in the *Eastern Carelia* case, to the effect that the Court would not deal with a dispute between a Member of the League and a State not belonging to the League, even to the extent of giving an advisory opinion, without the consent of the latter State, as apparently meeting the desire of the United States, so far as disputes to which the United States is a party are concerned. As to disputes to which the United States is not a party but in which it claims an interest, or questions, other than disputes, in which the United States claims an interest, the Conference proposed that the Court should attribute to the objection of the United States "the same force and effect as attaches to a vote against asking for the opinion, given by a Member of the League of Nations either in the Assembly or in the Council."

In connection with this proposal the Conference made a frank comment that the Senate's reservation appeared to rest "upon the presumption that the adoption of a request for an advisory opinion by the Council or Assembly requires an unanimous vote." It was pointed out that no such presumption had thus far been established and it was "therefore impossible to say with certainty whether in some cases, or possibly in all cases, a decision by a majority is not sufficient"; so that the opportunity of the United States to raise objection on a footing of equality with a member of the League in the Council and Assembly, respectively, would not assure to the United States, as required by the Senate's reservation, a right to prevent the entertaining by the Court of a request for an advisory opinion touching such disputes or questions in which the United States claims an interest.

The question having thus been raised, the response of the Conference of Signatories that unanimity may not be necessary in requesting advisory opinions has created a new situation, as adherence of the United States on these terms would require an explicit approval on the part of the Senate of an understanding that advisory opinions might be requested over the objection of the United States touching such disputes and questions in which the United States claims an interest.

As Mr. Hughes pointed out, the core of the difficulty had been recently stated succinctly and candidly by Senhor Fernandez, formerly Brazilian Ambassador to Belgium, who was a member of the advisory committee of jurists which drafted the statute of the Permanent Court. Senhor Fernandez said:

> It would be useless to deny, however, that certain members of the League of Nations have sufficient prestige to keep at least the Council, if not the Assembly, from taking up and deciding a question, if or when they doubt the expediency of doing so. Even if such a nation were in a minority at first, it is very likely that the other nations would yield to the arguments they bring forth, or would prefer to postpone a decision. As a matter of fact, this is the way things are done, and it would be disastrous if they were done differently; the Council is strong only when its members can reconcile their different points of view, and its usefulness consists precisely in facilitating such agreement through the personal contacts and the continued conversations that are possible only at Geneva. This being the case, the situation proposed to the United States, as affording a theoretical equality, would be as follows: the United States government, from a distance, would oppose its futile vetoes on proposals agreed on at Geneva; while certain other nations, on the scene, would retain their means of sidetracking the proposals that seemed troublesome to them.

The discussion of the Fernandez address was widespread both in America and abroad, the discussion being stimulated by the American Foundation, whose main purpose was to secure adherence to the World Court.

President Coolidge, however, took the ground that the hands of the United States were tied, and that he could do nothing. He accepted the answers received from member nations of the

World Court as being of such a nature as to give no encouragement for a further attempt on the part of the United States to reopen negotiations.

So far as the President had been able to learn, he had let it be known, there was no present willingness in the United States Senate to accept any modifications. He had received assurance from Senators who had been strong advocates of American participation in the World Court that, following the refusal on the part of member nations to accept the United States upon the terms laid down by the Senate, they could not hope to bring about a change in the position taken by the Senate.

Thus the matter stood at the end of 1927, although the American Foundation was determined to continue its campaign to make clear to as wide a public as possible the exact present status of the Court question and to analyze clearly the obstacles that were preventing the adherence of the United States to the Court.

In 1927 it published a draft treaty for the pacific settlement of international disputes through conciliation, arbitration or judicial settlement (See ARBITRATION). The purpose in publishing this treaty was twofold: First, the desire to show that the power of the United States to continue its traditional contribution to the causes of arbitration and pacific settlement is dependent upon consummating American adherence to the Permanent Court of International Justice, which increasingly forms an indispensable factor in general treaties for pacific settlement; and, second, a desire to show what is practically involved in the popular aspiration toward "outlawing war."

According to Prof. Manley O. Hudson, the sixth year of the Court had been both busy and fruitful, the judges having been kept continuously at The Hague from June 15 to December 16th. Four orders, four judgments and one advisory opinion were handed down. This brought the total up to eleven judgments and fourteen advisory opinions.

The court issued an order on the request of Belgium indicating provisionally that Belgian nationals in China were entitled to the rights secured by the Treaty of 1865; later they will decide whether China is entitled to denounce that treaty unilaterally.

Germany filed a proceeding with respect to reparations claimed to be due by Poland to two German companies on account of the attitude adopted towards these firms when Poland took possession of a nitrate factory in 1922. Various pleadings were filed, and Poland's plea to the jurisdiction was overruled and the president judge instructed to fix times for the counter case, reply and rejoinder.

A question having arisen as to the interpretation of Judgments Nos. 7 and 8, dealing with the seizure of this factory, the court decided that in Judgment No. 7 the court did not reserve to the Polish government the right of asking by process of law, even after the rendering of that judgment and with application to that particular case, for a declaration that the entry, in pursuance of the agreement of Dec. 24, 1919, of the name of the Oberschlesische Stickstoffwerke A. G. in the land registers as owners of the Chorzow factory is null and void; but that, by the aforesaid judgment, the court meant to recognize, with binding effect between the parties concerned and in respect of that particular case, amongst other things, the right of ownership of the Oberschlesische Stickstoffwerke A. G. in the Chorzow factory under municipal law. This judgment was reached by a vote of 7 to 3.

On September 7, a judgment was handed down in the *Lotus* case which involved some interesting points of international law. This case was one between France and Turkey arising out of a collision which occurred in 1926 between the French ship *Lotus* and the Turkish vessel *Boz-Kourt*. After the collision the *Lotus* made its way to Constantinople, where the Turkish authorities tried and imprisoned the French officer of the watch. France, claiming the imprisonment to be illegal, brought suit against Turkey, asking for damages. The main point in the case was whether the Turkish law conferring jurisdiction upon Turkish courts over offenses against Turkish nationals committed upon the high seas was valid. The court being evenly divided, the President cast the deciding vote in favor of Turkey, so that the case stands for the rule that the laws of a nation may apply beyond its limits unless there is a rule of international law to oppose it.

In the matter of the Mavromattis Jerusalem Concession, in which Greece and the British Empire were involved, and which had already been twice before the court, by a vote of 7 to 4 it was decided to uphold the preliminary objection denying the court's jurisdiction. This was the first time the court had refused to take jurisdiction.

On Sept. 18, 1926, representatives of France, Great Britain, Italy and Rumania signed an agreement at Geneva, requesting the Council of the League of Nations to ask the court for an advisory opinion on three questions, as follows:

1. Under the law at present in force, has the European Commission of the Danube the same powers on the maritime sector of the Danube from Galatz to Braila as on the sector below Galatz? If it has not the same powers, does it possess powers of any kind? If so, what are these powers? How far upstream do they extend?

2. Should the European Commission of the Danube possess either the same powers on the Galatz-Braila sector as on the sector below Galatz, or certain powers, do those powers extend over one or more zones, territorially defined and corresponding to all or part of the navigable channel to the exclusion of other zones territorially defined, and corresponding to harbor zones subject to the exclusive competence of the Rumanian authorities? If so, according to what criteria shall the line of demarcation be fixed as between territorial zones placed under the competence of the Rumanian authorities? If the contrary is the case, on what non-territorial basis is the exact dividing line between the respective competence of the European Commission of the Danube and of the Rumanian authorities to be fixed?

3. Should the reply given to (1) be to the effect that the European Commission either has no powers in the Galatz-Braila sector, or has not in that sector the same powers as in the sector below Galatz, at what exact point shall the line of demarcation between the two régimes be fixed?

It was decided:

(1) *a.* That under the law at present in force

the European Commission of the Danube has the same powers on the maritime sector of the Danube from Galatz to Braila as on the sector below Galatz;

b. That these powers extend up to the port of Braila, this port being included.

(2) *a.* That the powers of the European Commission of the Danube extend over the whole of the maritime Danube, and are not excluded from any zones territorially defined and corresponding to harbor zones:

b. That the dividing line between the respective competences of the European Commission of the Danube and of the Rumanian authorities in the ports of Galatz and Braila is to be fixed acording to the criteria:

(I) Of navigation, in the sense of the movement of ships as part of their voyage, the European Commission of the Danube being also competent in regard to navigation in ports, whether the ships are passing through or coming to or leaving their moorings, as far as navigation so understood is concerned;

(II) And of the obligation to ensure freedom of navigation and equal treatment of all flags, the European Commission of the Danube, being competent, also as concerns the ports, to exercise the supervision inherent in this obligation;

(3) That it is not necessary to give an answer to the question put under No. 3.

On September 7, the court announced the adoption of an amendment of Article 71 of the Rules of Court, relating to advisory procedure. This article originally read:

Advisory opinions shall be given after deliberation by the full court.

The opinions of dissenting judges may, at their request, be attached to the opinion of the court.

On July 31, 1926, this text was amended to read:

Advisory opinions shall be given after deliberation by the full court. They shall mention the number of the judges constituting the majority.

Dissenting judges may, if they so desire, attach to the opinion of the court either an exposition of their individual opinion or a statement of their dissent.

On September 7, a new paragraph was added, after the first paragraph, as follows:

On a question relating to an existing dispute between two or more states or members of the League of Nations, Article 31 of the statute shall apply. In case of doubt the court shall decide.

This represents a further step in the assimilation of the procedure with reference to advisory opinions to that in contested cases. It means that if the opinion sought relates to a dispute between two or more states, each of these states, if it has no national among the judges, may appoint one of its nationals to sit as judge *ad hoc*, just as it might do if it were party to a case submitted to the court for judgment.

WORLD CROPS. See AGRICULTURE

WORLD FEDERATION OF EDUCATIONAL ASSOCIATIONS. See EDUCATION.

WORLD LEAGUE AGAINST ALCOHOLISM. An organization originated in a conference of the Anti-Saloon League of America at Columbus, Ohio, November, 1916, and formally launched in a joint conference of the Canadian Temperance Alliance and the Anti-Saloon League. It met and adopted a constitution in June, 1919, at Washington. The charter members included representatives of sixteen national temperance organizations from twelve countries. The object of the World League is "to attain, by the means of education and legislation, the total suppression throughout the world of alcoholism, which is the poisoning of the body, germ-plasm, mind, conduct and society produced by the consumption of alcoholic beverages."

The World League is an educational movement, which under its constitution "pledges itself to avoid affiliation with any political party as such and to maintain an attitude of strict neutrality on all questions of public policy not directly and immediately concerned with the traffic in alcoholic beverages."

The League, which had assembled in its first convention at Toronto, Canada, November, 1922, with 1111 delegates representing 66 countries, met at Winona Lake, Indiana, August, 1927, with 1148 delegates from 58 countries. The official League membership in 1927 comprised 56 national temperance organizations from 33 of the leading countries of the world. The work of the League was carried on by the executive, legal, publicity and service departments, with offices at Westerville, Ohio; the research department was located in New York City; the Scientific Temperance Federation, which on behalf of the World League carries on studies of the scientific aspects of the alcohol problem and issues reports thereon, at Boston, Mass; the Intercollegiate Prohibition Association, operating as the students' department of the League, had its headquarters in the Bliss Building, Washington, D. C. Branch offices were maintained in London, England; Lausanne, Switzerland; Oslo, Norway; and Toronto, Canada. The League had four presidents: Miss Anna A. Gordon, Evanston, Ill.; Dr. Robert Hercod, Lausanne, Switzerland; the Rt. Hon. Leif Jones, York, England; Dr. Howard H. Russell, Westerville, Ohio. There were twenty vice presidents, representing as many different countries. Dr. Ernest H. Cherrington was general secretary.

WRECKS. See SAFETY AT SEA.

WRESTLING. Professional wrestling continued at a low ebb during 1927, both Ed ("Strangler") Lewis and Joe Stecher claiming the world's championship. A match between these two was arranged for Feb. 20, 1928, at St. Louis, and if it took place would mark their first meeting on the mat in seven years.

The annual tournament of the Amateur Athletic Union was held at Ames, Iowa, the winners of the final bouts being: 112 pounds, Leroy Pfeffer, University of Iowa; 118 pounds, Lawrence Lake, Oklahoma Agricultural College; 126 pounds, Arthur Holding, Iowa State College; 135 pounds, Allie Morrison, University of Illinois; 147 pounds, Ralph Prunty, Ames, Iowa; 160 pounds, Findley Collins, Oklahoma Agricultural College; 175 pounds, George Rule, Oklahoma Agricultural College; heavyweight, Roger Flanders, Stillwater, Okla.

Yale and Lehigh tied for first place in the intercollegiate championship, each scoring 14 points. Syracuse and Cornell also were deadlocked with 12 points each. Other colleges to score points were; Pennsylvania 8; Columbia 5; Princeton and Penn State 3 each. The individual winners were: 115 pounds, Charles Okum, Syracuse; 125 pounds, James Reed, Lehigh; 135

pounds, George McDonald, Pennsylvania; 145 pounds, John Geier, Cornell; 158 pounds, Burr Miller, Yale; 175 pounds, M. Sesit, Columbia; heavyweight, Jacob Patterson, Syracuse.

WUERTTEMBERG, vurt′tĕm-bĕrk. A constituent state of the German republic since November 1918; formerly a kingdom of the German Empire. Area, 7530 square miles; population, according to the census of 1925, 2,526,171. Chief city, Stuttgart, with a population in 1925 of 341,461. The movement of population in 1924 was: Births, 50,792; deaths, 33,694; marriages, 15,637. The chief occupation is agriculture, about 64 per cent of the total area being under cultivation. The chief crops with their acreage and production in 1925 were: Wheat, 207,775 acres, 1222 tons; rye, 70,522 acres, 347 tons; barley, 245,622 acres, 1328 tons; oats, 258,262 acres 1088 tons; potatoes, 204,072 acres, 9187 tons; hay, 1,321,018 acres, 27,737 tons; vines, 26,478 acres, 3,705,240 gallons of wine. The estimated revenue for the year ending Mar. 31, 1926, was 213,672,990 marks; expenditure, 215,535,182 marks. Supreme power is vested in the Landtag, composed of 80 members elected for four years by universal suffrage. This body appoints the state ministry, whose president is styled State President. State president and minister of education in 1927, Wilhelm Bazille.

WYOMING. Population. According to the Fourteenth Census, the population of the State on Jan. 1, 1920, was 194,402. Estimates made as of July 1, 1927, indicated a population of 241,000. The largest city was Casper, which increased from 11,447 in 1920 to 23,288 in 1925. The capital is Cheyenne.

Agriculture. The following table presents the acreage, production and value of the principal crops in 1926 and 1927:

Crop	*Year*	*Acreage*	*Prod. bu.*	*Value*
Hay	1927	1,094,000	1,721,000[a]	$15,489,000
	1926	1,054,000	1,698,000[a]	14,483,000
Corn	1927	176,000	3,696,000	2,785,000
	1926	176,000	3,520,000	2,534,000
Wheat, winter	1927	54,000	972,000	933,000
	1926	48,000	864,000	924,000
Wheat, spring	1927	172,000	3,440,000	3,234,000
	1926	150,000	2,850,000	3,050,000
Oats	1927	120,000	4,560,000	1,915,000
	1926	120,000	4,200,000	1,890,000
Potatoes	1927	17,000	2,414,000	1,690,000
	1926	13,000	1,456,000	1,820,000
Barley	1927	59,000	2,124,000	1,296,000
	1926	42,000	1,386,000	859,000

[a] tons.

Mineral Production. The production of petroleum, the leading mineral commodity of the state, was at a somewhat lower rate in 1926, being 24,558,000 barrels, as against 29,173,000 barrels in 1925; in value, $49,300,000 in 1926 (estimated) and in 1925, $51,467,000. The coal produced in 1926 totaled 6,968,000 short tons, and in 1925, 6,553,232 tons. Coal produced in 1925 was valued at $18,275,000. Natural gas production was 45,539,000 M feet in 1925; in 1924, 46,036,000 M feet. In value it was $4,149,000 in 1925 and in 1924, $4,081,000. Gasoline was produced from natural gas to the total of 40,200,000 gallons in 1926 and of 32,777,000 gallons in 1925; in value, $4,100,000 in 1926 (estimated) and $3,227,000 in 1925. The total value of the mineral production of the state, duplications eliminated, in 1925 was $78,754,915; in 1924, $75,494,166.

Finance. As reported by the U. S. Department of Commerce, payments for maintenance and operation of the general departments of the State government in the fiscal year ending Sept. 30, 1926, were $4,198,416; their rate per capita was $17.94. They included $1,341,430 apportioned for education. Totals not included in the above, of $183,740 in interest and of $2,279,229 for permanent improvement outlays, brought the aggregate of State expenditure to $6,661,385. Of this, $2,642,550 was for highways; $732,266 being for maintenance and $1,910,284 for construction.

Revenue receipts were $8,550,417, or per capita, $36.54. Of their total, property and special taxes yielded 22.1 per cent, attaining a per capita rate of $8.09. Earnings of departments and compensation paid the state for officials' services furnished 4.9 per cent of revenue; 14.6 per cent was derived from sale of licenses, chiefly on incorporated companies and on motor vehicles, and from a gasoline sales tax.

Net State indebtedness on Sept. 30, 1926, was $1,906,878, or $8.15 per capita. Property subject to ad valorem taxation bore a valuation of $457,760,169. State taxes levied thereon were $1,626,467, or $6.95 per capita.

Transportation. The total number of miles of railroad in the State on Jan. 1, 1927, was 1,094.44. No construction was reported in 1927.

Education. Power to impose school levies was transferred by enactment from the county schools commissioners to the school district boards. A committee studying the teachers' retirement problem continued its task. The high school enrollment, according to report in the *Journal* of the National Education Association, rose above 20 per cent of the entire enrollment, elementary and high. According to figures covering the scholastic year 1926–27, the school population was reckoned at 62,534. There were enrolled in the public schools of the state 49,764 pupils, of whom 39,636 were in the elementary schools and 10,128 in high schools. The year's total of expenditure for public school education in the state was $6,249,979.

Charities and Corrections. The State Board of Charities and Reform and State Board of Pardons formed together in 1927 the central state organization dealing with welfare activities. This organization reported the numbers of inmates in the institutions of the State on September 1 as follows: Wyoming State Penitentiary, 274; Wyoming State Hospital, 391; Wyoming General Hospital, 24; Wyoming State Training School, 190; Soldiers' and Sailors' Home, 26; Wyoming Industrial Institute, 70; State Home for Dependent Children, 28; Girls' Industrial Institute, 32; Wyoming Tuberculosis Sanatorium, 12. The State also maintained 4 women prisoners in the Colorado Penitentiary and dependents in schools for the deaf and blind in the States of Colorado, Nebraska, Montana, and Utah.

Legislation. The regular biennial session of the legislature convened January 11. In accordance with recommendations in the message of Governor Emerson, a State old-age pension measure was passed: this however was vetoed. Coupled with the pension, the measure provided the levy of a State tax of 3 cents a package on cigarettes. According to the Governor, this provision was unconstitutional in that it failed to scale the tax in accordance with the size and value of the package. A bill to permit persons to bring divorce proceedings after a residence of but four months in the State was passed by the lower house. The State savings loan act was amended.

Officers. Governor, Frank C. Emerson; Secretary of State, A. M. Clark; Treasurer, W. H. Edelman; Auditor, Vincent Carter; Superintendent of Public Instruction, Katherine A. Morton; Attorney General, W. O. Wilson.

Judiciary. Supreme Court: Chief Justice, Fred H. Blume; Associate Justices, C. N. Potter (died December 21) and Ralph Kimball.

WYOMING, University of. A State institution of higher education at Laramie; founded in 1886. It consists of a college of liberal arts, a college of agriculture, a college of engineering, a college of education, and a law school. The enrollment for the autumn of 1927 was 1073, classified as follows: Liberal arts, 642; agriculture and home economics, 123; engineering, 136; education, 249; law, 24. The registration for the two summer school sessions of six weeks each and the supplementary six weeks' session at Sun Dance totaled 1294. The teaching faculty numbered 111. The income for 1926–27 was $1,226,085. The library contained 67,000 volumes. President, Arthur Griswold Crane, Ph.D

YACHTING. For the second year in succession, international yacht competition was restricted to six-meter matches, the Seawanhaka Cup and the Scandinavian Gold Cup being the trophies at stake and both having been captured in foreign waters by the American yacht *Lanai.* The first trophy was won on the Clyde, England, in 1925 and the second at Oslo, Norway, in 1926. The Seawanhaka Cup contest in 1927 was a two-boat event, the American defender *Clytie* being defeated by the Norwegian yacht *Norweg.* The conditions governing the Scandinavian Gold Cup competition provide that the trophy shall go to the yacht winning the first three races. After a long drawn out struggle *May Be,* a Swedish entry, emerged the victor, the American defender, *Lea,* being hoplessly outclassed. Eight nations took part in this series: United States, Norway, Sweden, Denmark, Finland, England, Holland, and Italy. The Star Class race held on Narragansett Bay afforded another interesting international test, the outcome being a tie between the *Tempe III,* representing Newport Harbor, California, the *Colleen* from the Central Long Island Sound fleet and the *Mackerel* of Chesapeake Bay, each having 71 points. *Tempe* won the sail-off from the *Colleen.*

The annual cruise of the New York Yacht Club was favored with excellent weather except in the King's Cup event which turned into a drifting match won by Harry L. Maxwell's sloop *Barbara.* The racing for the Commodore's Cups had to be abandoned because of the poor weather conditions. In the earlier racing of the cruise the *Vanitie* easily captured the schooner cup while Harold Vanderbilt's *Prestige* took the sloop prize. The Larchmont Race Week fleet numbered 188, breaking all records, but miserable weather marred this annual yachting feature.

The outstanding event in motor boating during 1927 was the annual Gold Cup competition which was held at Greenwich, Conn., under the auspices of the Indian Harbor Yacht Club. There were more than a dozen boats entered, including the defending craft, *Greenwich Folly,* owned and driven by George H. Townsend of the Indian Harbor Club. One by one the several rivals of the *Greenwich Folly* dropped out by reason of accidents, until only the defender and *Miss Columbia,* driven by Charles F. Chapman, were left in the race. *Miss Columbia* was finally compelled to stop to do some rescue work, and *Greenwich Folly* won.

Women drivers turned in some notable performances during the year, Miss Delphine Dodge Cromwell winning several prizes with her *Miss Syndicate.* Included among her trophies were the President's Cup and the Dodge Memorial Trophy. Miss Helen Hentschell showed skill as a driver of outboards by covering 27.48 miles an hour at Albany, a record for Class B boats. J. H. Rand's *Spitfire V* set a world's record for 151-hydroplanes of 63.09 miles an hour.

YALE UNIVERSITY. A non-sectarian institution of higher education at New Haven, Conn.; founded in 1701. The university consists of ten schools, as follows: Undergraduate: Yale College (1701); Sheffield Scientific School (1847); graduate and professional: graduate school (1847); school of medicine (1813); divinity school (1822); school of law (1824); school of the fine arts (1866); school of music (1894); school of forestry (1900); school of nursing (1923). Since 1920 the undergraduate freshman year has been under the jurisdiction of a separate dean and faculty. The enrollment for the autumn of 1927 was 5459, including 450 who were not candidates for degrees. Of those working for degrees 635 were in the graduate school; 1608 in Yale College; 698 in the Sheffield Scientific School; 878 in the freshman year; 212 in the school of medicine; 219 in the divinity school; 367 in the school of law; 312 in the school of the fine arts; 100 in the school of music; 44 in the school of forestry; 49 in the school of nursing; and 37 research fellows working on the various foundations. The registration for the summer session of the school of law was 112. The faculty numbered 1095, consisting of 205 of professional rank, 55 associate professors, 160 assistant professors, 224 instructors, and 434 assistants. The library, including the departmental libraries, contained 1,838,063 volumes and pamphlets. The total endowment was $49,144,159.96, and the income for the year was $5,658,071.66. As a result of the decision to increase the endowment by $20,000,000, in order to carry on successfully the work done in various fields, Yale men the world over were enlisted during the past year in raising the sum. At commencement, 1927, it was reported that $17,200,000 had been received in gifts or pledges, and the goal was reached by the end of the year.

In 1926 the school of medicine instituted changes compatible with graduate education and designed to increase the student's latitude of choice and his opportunity for study in selected fields. Ordinarily, the first two years were to be devoted to study in the branches of science considered prerequisite for the study of clinical medicine, after which the student will take an examination for admission to the course in clinical medicine, which comprises major work in clinical medicine or in one of the basic subjects in the biological and medical sciences.

In 1927 the School of Law adopted rules requiring a college degree of every applicant for entrance except from Yale undergraduates electing the combined course. Applicants from other law schools are not to be admitted unless they have an average of B in their law school work. Only one hundred college graduates who have not previously studied law are to be admitted in any one year. The admission is on a basis of a personal interview, a classification test, and inspection of the applicant's college record. Plans were made for beginning the erection of the Sterling law buildings in 1928, under provisions made by the trustees of the estate of John W. Sterling of New York City.

In 1927 the Trustees of the estate of John W. Sterling gave $1,000,000 to establish Sterling chairs in biology, palæontology, law, and English history. The buildings erected at East Lyme, Conn., for the summer engineering courses of the Sheffield Scientific School were completed during the year. The Alumni War Memorial, designed by Thomas Hastings, and completed in 1927, takes the form of a colonnade on the south side of University Hall; above is an entablature with the names of important engagements in the Great War; in front is a terrace with a cenotaph. William L. Harkness Hall, containing lecture and recitation rooms and offices for members of the faculty, was completed in October, 1927. A portion of Charles W. Bingham Hall, a dormitory, was completed for occupancy in the autumn of 1927, and the Art Museum was under construction. The athletic facilities were augmented by gifts of funds for the Phipps Polo Field and for the Charles E Coxe Memorial (Yale Field Gymnasium). President, James Rowland Angell, Ph.D., Litt.D., LL.D.

YAP. A Japanese island of the Caroline group in the Pacific, centre of administration for the western Carolines; an important wireless and cable station. Population, 8439.

YAWS. Since the acquisition of the Philippine Islands by the United States this chronic contagious disease, which bears so close a resemblance to syphilis and is so common as to figure under social medicine, took on renewed interest to the people of the United States, although until quite recently no official notice had been taken of it. In the Dutch East Indies beginning in 1919 an attempt was made to stamp out the disease by a systematic campaign which involved the wholesale injection of neoarsphenamine (neosalvarsan); and in the next five years over a million injections of this drug were made, with such success that yaws was regarded as practically eradicated. In 1924 the same effort was made by the Philippine Health Service. In five of the provinces the incidence of the disease was over 95 per 1000 population and 25 clinics were established to treat the 21,000 known victims with the neoarsphenamine injections. So startling was the benefit that the patients met the Health Service more than half way. A loathsome, incapacitating and contagious disease was rapidly being eradicated, yaws fortunately being a relatively easy disease to cure permanently.

YELLOW FEVER. This disease in 1927 was dormant in the western hemisphere, but according to the monthly report of the Section of Hygiene of the League of Nations, dated July 15, an epidemic of it broke out in October, 1926, on the west coast of Africa during the transportation of 200 Syrians to Senegal. The pestilence was extinguished in January after 29 deaths had occurred, but reappeared in May in Senegal, Togoland and Dahomey and the Gold Coast, in scattered figures. The daily press announced on September 3 the death from yellow fever of Prof. Adrian Stokes (q.v.) at Lagos, West Africa. He was functioning as a member of the Rockefeller Yellow Fever Commission. He had been studying infected mosquitoes and was believed to have been bitten by one of them. As he was on the point of returning to London it was believed that the disease had been arrested for the time. In a letter written shortly before his death he stated that years might be required to extirpate the pestilence with finality, and it was evident that this could not come to pass until the "reservoir" which harbors the germ of the disease during its dormant periods was discovered and placed under control. Eighty-five per cent of the mosquitoes examined at Rufisque, Senegal, were examples of *Stegomva*, the form which is known to propagate the disease.

YEMEN, Imamate of. See Arabia.

YOUNG, Sir Frederic William. British consulting engineer and salvage expert, died at London, December 20. Born in 1858, he early followed the sea traditions of his family and for 36 years was chief surveyor and salvage officer of the Liverpool Salvage Association. As head of the Salvage Section of the British fleet during the World War he devised the boom defenses at the mouth of the Thames, blocked Portland harbor by sinking the battleship *Hood* bottom up, and helped to fit out the expedition which destroyed the *Königsberg*. Other exploits included the raising of the British *K-13* sunk during the war in a trial test off the coast of Scotland, which led to the rescue of the crew of 43 after 56 hours' imprisonment; the refloating of the battleships *Conqueror* and *Britannia;* and the reconditioning of the *Lion* after the battle of Heligoland. He was said to have been the first to raise a sunken German U-boat. It was estimated that he was instrumental in lifting vessels and cargoes to the value of £50,000,000 during the War. He was made a Knight Commander, Order of the British Empire, in 1920 and received decorations from numerous foreign governments in recognition of his services during the War. At the time of his death he was managing director of Sir Frederic W. Young & Co., Ltd., salvage experts and consulting engineers.

YOUNG MEN'S CHRISTIAN ASSOCIATION. An educational, social, physical and spiritual movement for men and boys found in every civilized nation of the world. This organization had its birth in London in 1844, and spread to the United States in 1851. The records, as of June 1, 1927, showed 1,561,365 members throughout the world, 61 per cent of whom were in North America; 7241 employed officers, 73 per cent being in America; and $241,450,800 in net Association property, of which 85 per cent was in North America. In 1927 the movement in North America involved 1681 local organizations recognized by the convention, with 88,957 directors and voluntary leaders, 5401 paid officers, and a paid-up membership of 989,534. Of these, 260,612 were boys 12 to 17 years of age. Five per cent of this body of workers and members were found in the Canadian associations and the remainder in the associations of the United States. Statistics as of June 1, 1927, showed $205,183,600 of net property and funds paid in. Of this amount, $20,344,200 was in endowment funds. The operating expenditures for 1927 were $57,126,300, more than $1,100,000 per week. These expenditures were provided for by the members, plus contributions from friends amounting to $15,918,400.

In its activities, the Young Men's Christian Association movement involves several hundred distinct features or lines of service. In its physical training and service it enrolled 587,041 men and boys in the year ending April 30, 1927. In educational features, including lectures, discussions, evening schools, and regular college courses, both day and evening classes, about 300,000 men and boys were served. The number in regular courses of instruction covering from two to four years in length and of college grade was 83,504, a number equal to all of the male students in all of the colleges and universities of the United States having an enrollment of less than 3000 each. During the year 234,966 students were enrolled in the Bible courses, and there was a total attendance of 5,551,500 at the definitely religious meetings.

A few years after the work began in North America, it expanded its helpfulness to foreign lands, where there were, in 1927, 210 local and national secretaries at work in 32 different countries, supported with a budget of $2,155,400 by the Associations of North America. This amount was included in the total annual expenditures mentioned above.

For the professional training of secretaries and paid officers there were three Association colleges in the United States: Springfield, Mass., with 467 students; Chicago, Ill., with 287; Nashville, Tenn., with 99. To facilitate the training and efficiency of workers who could not attend these colleges, there were nine summer schools, lasting from two to four weeks each. In 1927 these summer schools had an enrollment of 1413. In addition to hundreds of bulletins of various kinds, issued by the State and local Associations, there were the following international periodicals for the North American Associations: *Association Men*, monthly; *The Intercollegian*, monthly; *The Student World*, quarterly; *Physical Training*, monthly; *The Association Forum*, quarterly.

By the formation of the national councils of United States and Canada, Jan. 1, 1925, the international committee became only the holding organization for the two national councils and turned over to them the active supervision and promotion of the local and state activities. It also continued a very close relationship to the conduct of the foreign work which was supported by the Associations in both national councils. The headquarters and officers of these three organizations were as follows: The International Committee, 347 Madison Avenue, New York: James M. Speers, chairman, Dr. John R. Mott, general secretary; The National Council of the United States, 347 Madison Avenue, New York: D. W. Teachout, chairman, Dr. John R. Mott, general secretary; The National Council of Canada, 40 College St., Toronto, Ont., R. F. McWilliams, chairman, H. Balantyne, general secretary.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION. An organization and movement aiming to advance the physical, social, intellectual and spiritual interest of young women, to promote growth in Christian character and service, and to become a social force for the extension of the Kingdom of God. It holds a convention biennially, the 1926 convention having taken place in Milwaukee and the 1928 convention being scheduled for Sacramento, California, in April. The executive committee of the organization is known as the National Board of the Young Women's Christian Associations and to it is entrusted the work of the organization during the interim of conventions. The Board interests itself in the city, town and county associations throughout the United States and its territories. Through its Foreign Division it works with other members of the World's Committee of the Young Women's Christian Associations, in carrying on Association work for women and girls in the Baltic States, the Near East, the Orient, South America, and the Philippine Islands. In the Oriental countries work is undertaken by the Association only upon invitation of the Mission Boards already working in the country. In 1927 work was being carried on under this department in 12 countries with a staff of 110 secretaries. The Young Women's Christian Associations in the United States in 1926 embraced from 900 to 1000 centres and branches in 254 cities. There were 40 rural Associations doing work in 720 communities, 147 Associations in towns, and 647 student Associations in schools and colleges. These local Associations had a membership of over 580,000 and real property amounting to over $55,000,000. The gross budget of the local Associations for 1926 was estimated at approximately $24,700,000, about 75 per cent of which was met by earnings from cafeterias, boarding homes, etc. The National Board budget for the year 1927 was $2,248,451.96, of which $382,544 was for promoting work in China, Japan, India, South America, Mexico, Philippine Islands, Russia, the Near East, and the Baltic States. The National Board had endowments yielding approximately $131,000 annually, and income-producing and business features which in 1926 represented a gross income of about $937,000. Contributions in 1926 totaled $1,106,017.73.

The officers of the National Board for 1927 were: Mrs. Robert E. Speer, president; Mrs. John French, chairman of the executive committee; Mrs. John H. Finley, first vice president; Mrs. John D. Rockefeller, Jr., second vice president; Miss Katharine Lambert, secretary; Mrs. Samuel Murtland, treasurer; and Mrs. George W. Davison, assistant treasurer; Miss Mabel Cratty, general secretary. The National Board operates through the three regional offices in Chicago, Ill., Denver, Colo., and San Francisco, Cal., and its headquarters at 600 Lexington Avenue, New York City. The Y. W. C. A. National School for Professional Study is at 135 East 52nd Street, New York City.

YUKON, yōō'kŏn. A territory of the Dominion of Canada; bounded on the west by Alaska and stretching from British Columbia to the Arctic Ocean; constituted a separate political unit in 1898. Area, 207,076 square miles; population, 4157, according to the census of 1921; estimated in 1925 at 3500. The chief towns are Dawson, the capital, and White Horse. Mining is the principal occupation, and the chief minerals are gold, copper, silver, lead, and coal. The output of gold in the year 1925 was valued at $988,465 and of silver at $624,964. The revenue for 1925 was $210,995, and the expenditure $229,349. At the head of the government is a Gold Commissioner and a territorial council of three elected members. Acting Gold Commissioner in 1927. Percy Reid

YUSEF, Mulai. Sultan of Morocco, died at Fez, November 17. He was born in Mequinez in 1882, the third son of Sultan Mulai el Hassan, who reigned until 1894. Each of his brothers who reigned before him had been forced to abdicate, and, following the establishment of a French protectorate over the empire during the reign of his predecessor, Mulai Yusef was proclaimed at Fez, Aug. 17, 1912. He remained loyal to the French throughout his reign and coöperated with General Lyautey, the French Resident-General. With French assistance he was able to institute reforms in education, in the administration of justice and in matters relating to religious land properties and land titles of aliens. On account of the loyalty of Mulai Yusef during the World War Governor Lyautey was able to reduce the French garrison in Morocco and to send to Europe a brigade of native volunteers. Mulai Yusef, whose visit to France in July and August, 1926, aroused great interest, was said to have been the first Moorish Sultan who was able to leave his dominions without fear of finding his throne occupied by a rival upon his return.

ZAGHLOUL, Pasha Said. Egyptian prime minister, died at Cairo, August 23. He was born in 1851 at Biana, Egypt, where he lived the simple life of his parents before entering the great Mohammedan University of Al Azhar. He was still quite young when the first nationalist movement in Egypt, originally directed against the dynasty and ruling Turkish caste, became anti-European. He joined in the rebellion of Arabi Pasha in 1882, and after arrest and release began to practise as a barrister. Zaghloul's sudden appointment in 1906 to be minister of education took the public by surprise, but he soon won favorable opinions. In 1910 he became minister of justice and came into frequent personal contact with Khedive Abbas Hilmy. Contact meant conflict, and in 1912 when Zaghloul Pasha could not prove charges he had made against the khedive, he was compelled by Lord Kitchener to resign. From that date the Pasha nourished a grievance against the British agent and the country he represented. He was already marked as a leader of no mean capacity when the outbreak of the World War led to the deposition of the khedive and the proclamation of the British protectorate. An agitation for Egypt's complete independence caused the cabinet to resign on Mar. 1, 1919. The agitation grew fierce and, on March 9, the British military authorities arrested Zaghloul Pasha and three of his principal associates and deported them to Malta. This led promptly to a popular outbreak all over the valley of the Nile and was only repressed by considerable British forces after some bloodshed and much destruction of property. Lord Allenby was hurriedly sent to Cairo as high commissioner and he secured the consent of the British government to the release of Zaghloul Pasha and his friends. The Pasha proceeded to Paris where he continued to direct the agitation for independence. In March, 1921, he was permitted to return to Egypt, and in December of that year after another period of turbulent demonstrations and rioting he was again arrested and deported to the Seychelles Islands. Lord Allenby, recognizing the danger of a prolonged deadlock, went to London and secured the independence of Egypt as a sovereign State. After the promulgation of the new constitution in 1923, Zaghloul Pasha returned to Egypt for the elections. His party sweeping the country, he was elected prime minister in February, 1924. The assassination of the Sirdar, Sir Lee Stack, on Nov. 19, 1924, was a direct blow to his cause and led to his resignation. See Egypt.

ZANZIBAR. A British protectorate, consisting of the island of the same name off the coast of Tanganyika in East Africa, together with the island of Pemba and several other small islands. Area, Zanzibar, 640 square miles; Pemba, 380 square miles; population, according to the census of 1924, 216,790 (Zanzibar, 129,140; Pemba, 87,650). The total number of children attending schools in 1924 was 3405. The prevailing religion is Mohammedanism. Zanzibar, with a population in 1924 of 38,700, is one of the chief ports of Africa. The chief industry is the production of cloves, the two islands of Zanzibar and Pemba yielding the greater part of the world's supply. The exports in 1925 were 219,217 cwt., and clove-stems, 41,440 cwt. The coconut industry ranks next in importance to cloves; the export of copra amounted to 350,274 cwt. in 1925. The value of imports in 1926 was 24,503,000 rupees; exports, 23,788,000 rupees; revenue in 1926, £487,168; expenditures in 1926, £690,000; tonnage entered and cleared in 1925, 1,033,784 net tons. The nominal head of the government is the Sultan, but the actual administration is in the hands of a British Resident, who is aided by an advisory council under the presidency of the Sultan. The Sultan's decrees are not binding unless countersigned by the British Resident. Sultan in 1927, Seyyid Khalifa bin Harub; British Resident, A. C. Hollis.

ZEISLER, Fannie Bloomfield. American pianist, died at Chicago, August 21. She was born at Bielitz, Silesia, July 16, 1863, the daughter of Solomon and Bertha Jaeger Bloomfield. In 1868 her parents settled in Chicago, where she began her musical studies under Bernhard Ziehn and Carl Wolfsohn. She made her first public appearance in 1876. From 1878 to 1883 she studied in Vienna under Leschetizky. She then returned to America, and for the next ten years toured the United States from coast to coast, giving numerous recitals and playing with all important orchestras. Her tour of Germany, in 1893–95, was a succession of triumphs and established her reputation as one of the greatest of contemporary female pianists, the peer of Menter, Essipov, and Carreño. She was equally great as an interpreter of the classic and the romantic masters. In 1885, she was married to Sigmund Zeisler, a prominent lawyer of Chicago

ZINC. The world production of slab zinc in 1927 was estimated at about 1,450,000 tons, or an increase of approximately 5 per cent over 1926. Of this amount the United States produced approximately 42 per cent, or 612,000 tons, which was a decrease of some 4 per cent as compared with 1926. After the United States, Belgium came next as a producer, being followed in order by Upper Silesia and France. Europe apparently was mining zinc ores to meet its needs, and Great Britain was receiving supplies from Canada and Mexico, in both of which countries production was increasing.

The output of primary metallic zinc in the

United States from domestic ores in 1927 was about 575,000 tons and that from foreign ores about 13 000 tons, a total of 588,000 tons, as compared with 611,991 tons from domestic ores and 6431 tons from foreign ores, a total of 618 422 tons in 1926. In addition to the output of primary zinc there was an output of about 45,000 tons of redistilled secondary zinc, as compared with 40,799 tons in 1926, making a total supply of distilled and electrolytic zinc in 1927 of about 633,000 tons, composed of 192,000 tons of high grade and intermediate, 71,000 tons of select and brass special, and 370,000 tons ot prime Western zinc. Of the total output of primary zinc in 1927 about 117,000 tons were made in Oklahoma, 103,000 tons in Illinois, and 103,000 tons in Pennsylvania. The remainder was made in Arkansas, Indiana, Kansas, Montana, Texas, and West Virginia.

MINE PRODUCTION OF ZINC IN THE UNITED STATES IN 1926 AND 1927

[*In terms of the recovered and recoverable metal content, in short tons. U. S. Bureau of Mines, 1927, estimated*]

District	*1926*	*1927*
Eastern States	103,598	117,200
Central States:		
Tri-State district	423,800	341,900
Southeastern Missouri	1,092	3,800
Upper Mississippi Valley	29,377	33,100
Other	1,925	1,400
Total	456,194	380,200
Western States:		
Arizona	6,473	990
California	10,217	4,120
Colorado	82,500	37,440
Idaho	26,307	25,300
Montana	73,701	71,700
Nevada	5,409	3,630
New Mexico	12,053	26,800
Utah	47,590	47,900
Washington	522	710
Total	214,772	218,590
Grand total	774,564	715,990

Figures published by the American Metal Market gave an average quoted price of 6.26 cents a pound for prime western zinc at St. Louis in 1927, as compared with an average selling price for all grades in 1926 of 7.5 cents. At the opening of the year the quotation was 6.975 cents a pound and the average quotation for December was 5.74 cents, with quotations of 5.625 to 5.65 cents a pound prevailing during the closing days of the year. The following are the average monthly prices on prime Western zinc at St. Louis, in cents a pound:

January	6.7	July	6.2
February	6.7	August	6.4
March	6.7	September	6.2
April	6.4	October	6.0
May	6.1	November	5.8
June	6.2	December	5.7

At the beginning of the year the price at Joplin of 60 per cent zinc concentrates was $46 a ton. Prices began a downward trend from $50 a ton in the latter part of September, 1926, and the decline was not halted until $42 a ton was reached in the third week in January, 1927. After a recovery of $3 a ton was made in the next few weeks, the price dropped to $38 a ton in May. The price recovered in July to $43 where it remained for a few weeks, followed by a steady decline to $35 a ton in November. After a slight recovery the price again receded to $35 a ton, where it was at the end of the year.

ZIONISM. See JEWS.

ZONING. See CITY PLANNING.

ZOOLOGY. The American Society of Zoologists met at Nashville in the last week of December, in affiliation with Section F of the American Association for the Advancement of Science. The address before Section F was given by W. C. Curtis as retiring vice president. S. J. Holmes was president of the zoologists. The American Society of Naturalists met at the same time, under the presidency of C. E. McClung. The British Association for the Advancement of Science met at Leeds in the first week in September under the presidency of Sir Arthur Keith. The presidential address before Section D in zoölogy was made by Dr. Bidder. It was announced at the meeting that, by the gift of G. Buckston Browne, Darwin's cottage at Downe had been acquired as a permanent memorial to be held as the property of the nation. The tenth international Congress of Zoölogy was held at Budapest September 3 to 10 under the presidency of Professor Gésa Horváth, and a summary of its proceedings appeared in *Nature* (vol. 120, p. 605).

Very little of taxonomic or morphological zoölogy appeared in the papers read, but the animal and all of its parts, down to the ultimate cell, were viewed in their functional rather than structural aspects. The theme seems to be to follow the organism as a living entity working in harmony with its environment.

EVOLUTION. As the presidential address at the meeting of the British Association for the Advancement of Science, Sir Arthur Keith summarized the evidence concerning the ancestral history of man (*Nature*, vol. 120. Sup., p. 14,). and his relationships with the lower animals, going into the various lines of evidence such as blood tests, brain structure, etc. He asserted that the differences between the brain of man and that of the apes is entirely quantitative and in no sense qualitative. That there is still room for differences of opinion concerning the exact relationship between man and the apes is shown by the fact that Osborn and Gregory disagree fundamentally as to the time when the man line and the ape line separated. Osborn (*Science*, vol. 65, p. 481) declares that man has not descended from an arboreal animal but that the first man appeared during the Tertiary period, hundreds of thousands of years ago, in what he calls the Dawn Man stage. This Dawn Man belongs to a distinct family, the Hominidae, entirely unlike the Simiidae to which belong the apes. Man is and always has been a ground living animal, capable of tool making, living originally in relatively free country on the high plateaus and plains of northern Asia. Resemblances between the Hominidae and the Simiidae are due either to a very remote common ancestor or to convergence of the ape toward the human type. Psychologically man has a bipedal, dextrous, wide roaming disposition, while the ape has a quadrupedal, brachiating, tree-living psychology.

On the other hand, Gregory (*Science*, vol. 65, p. 601), states that the Dawn Man is an anachronism and that man is a close relative of the gorilla and the chimpanzee, in a group that, so far as is known, first appeared in the Oligocene. The human foot contains unmistakable evidence that man is descended from an arboreal animal. Gregory thinks that as Osborn's work in palæontology has mostly been done on the hoofed mammals, where evolution has been extremely slow (it having probably taken 6,000,000 years to produce the differences between tapirs and horses), he fails to realize the plasticity and consequent rapid evolution of the members of the anthropoid group. Continuing his articles on speciation (see Year Book for 1926), Osborn (*Amer. Nat.*, vol. 61, p. 5), concludes that "speciation is a normal and continuous process; it governs the greater part of the origin of species and is apparently always adaptive. Mutation is an abnormal and irregular mode of origin which, while not infrequently occurring in nature, is not essentially an adaptive process; it is rather a disturbance of the regular course of speciation."

Ecology. It is generally assumed that the first animals appeared in the oceans, and that fresh waters and land were populated from salt waters, Pearse (*Am. Nat.*, vol. 61, p. 466) agreed with this assumption, but stated that the problems as to the routes of migration from one of these localities to the other and the stimuli which started and continued the movements are not at all well understood. It seems probable that animals first left the salt water because fresh water offered better opportunities for food, for breeding and for safety. Efficient stimuli leading to land living might be lack of oxygen in small bodies of fresh water as well as the drying to which animals living under these conditions would be subjected. Allee (Quar. *Jour. of Biol.*, vol. 2, p. 367) discussed at some length the literature dealing with the subject of animal aggregations. Under this name may be grouped associations of various kinds, but the paper dealt especially with groups of free-living, motile animals that come into close physical contact but are not integrated into social units. Some of such aggregations are due merely to such reactions as are commonly grouped under the head of tropisms, the tropistic response being similar in different animals and thus tending to bring them together. In this case there is no social trait involved. Other factors producing aggregation are breeding, hibernation and æstivation, during which time many animals aggregate.

The effect of aggregations may be beneficial, as in cases where the animals coöperate in offensive or defensive activities, but may be deleterious owing to lack of food, accumulation of waste products, or to an as yet unexplained factor which interferes with reproduction when animals are living under crowded conditions. It is certain that in some cases aggregated animals are less susceptible to poisons than solitary ones. This may sometimes be due to a dilution of the poison so that each animal gets a very small dose, but there is some evidence that this result follows even in cases where each one of the aggregate actually gets more poison without injury, than did a solitary individual which succumbed to its effects. It would seem that there is some sort of a defensive secretion thrown off which in the aggregation protects its members from injury. The first step toward social life is the appearance of toleration for other animals in limited spaces. The first advance from this is made when these groupings serve to protect at least some of the individuals; as, e.g., by securing a slower rate of moisture change, as has been shown to occur in grouped land isopods. The author queries whether the human family and all other sexual phenomena were not conditioned in their development by previous formation of aggregations which primarily had no sexual significance but possessed other survival value. In a later communication (*Biol. Bull.*, vol. 53, p. 301), Allee and Schuett discuss the relation of animal aggregations to definite poisons; in this case, colloidal silver. The results of experiments indicated that bunched individuals were less injured by the chemicals than were isolated ones, but the authors interpreted this to mean that in the bunch a smaller amount of toxic material must be removed by each individual to lower the threshold below toxicity than would be the case if each were isolated. The authors found no necessity for the assumption of an autoprotective substance given off by the animals. but considered the result due to some secretion such as surface slime, which adsorbed the poisonous materials. The results indicate that crowding is not necessarily a menace. It seems probable that the pioneers of an animal group first act on their environment so as to make it more favorable for themselves and their successors, but that an accumulation of this same material may be fatal to this group and prepare the way for an ecological succession.

Transeau (*Ecology*, vol. 8, p. 285) showed that the distribution of the Mexican bean beetle and the European corn borer in Ohio follow areas which in each case were originally occupied by definite types of forest. Climatic and environmental conditions determine the distribution and should make it possible to predict which areas in any state will be most apt to be affected by these insects. Hathaway (*Ecology*, vol. 8, p. 428), found that small freshwater fishes eat more in proportion to body weight than do large ones, and that all freshwater fish eat three times as much at a temperature of 20° as they do at one of 10°. There was no tendency to become acclimated even if this temperature extended over several weeks. Allee and Torvik (*Jour. of Ecol.*, vol. 15, p. 66), from a study of animal distribution in a Panamanian rain forest stream concluded that oxygen and the acidity of the water may be limiting factors in the distribution of animals, but are not at all the most important ones.

Heredity. In the fruit-fly *Drosophila* as well as in many other animals, two peculiar chromosomes, the X and the Y, have been identified as different from the remainder or "autosomes," and a considerable number of genes have been located in the X. Morgan believes that the Y carries no genes in the fruit fly but is "empty"; another observer (see Year Book for 1926) thought he located some genes in it. Castle (see Year Book for 1921) thought that he had located genes in the Y chromosome of the small fish *Lebistes*, this being the first recorded discovery of such location in that chromosome. Winge (*Jour. of Genet.*, vol. 18. p. 1) described experiments on heredity in *Lebistes reticulatus*, the results indicating that the X and the Y chromosome differ in that the Y carries a dominant male gene while X may have either a recessive female gene or no gene at all. These genes persist in their location, while other genes may cross over from X to Y or from Y to X. The author describes nine newly discovered genes, which, added to those previously identified, makes eighteen genes for color marking in *Lebistes*. Nine of these are located on the Y and three on the X chromosome.

Stern (*Zeit. f. ind. Abst. u. Vererbung*, 44, p. 188) elaborated an earlier paper (see Year Book for 1926), giving detailed evidence for the presence in the Y chromosome of *Drosophila* of the allellomorph of the gene for the "bobbed" character. In general, the polled or hornless condition in cattle is a simple dominant over the horned. Smith (*Jour. of Heredity*, vol. 18, p. 365) recorded cases where a registered Aberdeen-Angus (polled) bull was mated with native cattle of Northern Rhodesia. All of the female offspring were polled, while most of the males had horns of some character, though some were polled. This he interprets as indicating that horns are inherited as a sex-limited character, appearing in the females only if duplex. In other matings polling is dominant. It would appear that one of these conditions may be altered into the other by action of one or more modifying factors. The author showed reason to believe that ancestrally the females were polled and the males horned, but that later the females acquired horns. When blood strains other than those of the commoner breeds are used, other factors appear which modify the normal mode of inheritance.

"Crossing over" of genes has been explained by Morgan as due to an interchange of chromosome material taking place during the intimate contact that exists between chromosomes during the maturation divisions, the most important evidence for this conclusion being derived from Johanssen's description of the chromosomes in the "chiasmatype" phase. McClung (*Quart. Review of Biology*, vol. 2, p. 344) reviewed Johanssen's work and compared it with his own extensive researches. His conclusion was that chromosomes are living, active, protoplasmic structures and may go through a wide range of activities during mitosis, but he could find little evidence that the peculiar events described by Johanssen, and forming the basis of Morgan's theory of crossing over, really occur.

An International Congress of Genetics was held in Berlin September 11 to 18, under the presidency of Professor S. Navashiu. According to a report of the Congress in *Nature* (vol. 120, p. 495), the most important paper at the congress was read by Muller, on the production in *Drosophila* of mutations by the use of X-rays. Under normal conditions *Drosophila* produces mutations in the ratio of 1 to 1000 normal individuals, but in these experiments more mutations have appeared than in all the previously recorded work. It is important to note that among these such mutations as rudimentary, broad, and veinless wing, vermilion and white eye color—mutations, that is, which have been common in earlier cultures—appear, and that there has been an enormous increase in the number of lethal genes. A number of writers in various publications have called attention to the danger of producing, in this way, undesirable results in human beings, through the action on the germ cells of X-rays employed for experimental or therapeutic purposes. It is evidently desirable that in using X-rays the sex cells should be shielded from their action.

Goldschmidt, in *Physiologische Theorie der Vererbung*, argued that all mendelian genes are concerned fundamentally with rates of developmental processes, and the differences between allellomorphs can always be reduced to, and best thought of as, differences in such rates of action.

Animal Rhythms. It is a common observation that many if not all, animal activities occur in definite rhythmical sequences. Discussing this matter, Richter (*Quart. Rev. of Biol.*, vol. 2, p. 307), stated that animal rhythms are carried on following internal stimuli and occur under uniform external stimulations. A definite example is the relation between bodily movements and the stomach contraction correlated with hunger sensations. Observations on the rat showed that these two movements coincide, contractions ceasing after feeding, to be repeated at regular intervals of from one to two hours. Similarly, in the female rat there is a four-day cycle, the females in a specially devised cage running eight to ten miles every fourth day and only a fraction of a mile on the three intervening days. This coincides with the œstrous cycle.

An interesting suggestion as to the origin of animal rhythms was made by Bidder in his presidential address to the section of zoölogy at the meeting of the British Association at Leeds. Referring to Allen's suggestion as to the origin of living matter (see Year Book for 1922) by a process of photo-synthesis, the first living organism being a flagellate, Bidder argued that this process of building up of protein is a discontinuous one, because if a particle containing 100 molecules acquires a composition of 101 molecules this must be a discontinuous process. The expansion of molecular volume means storage of energy. When energy is given up to form a new molecule, the old one returns to its original volume and thus a rhythmical pulsation is set up in the living protein. Protoplasm gelates in contact with water, and in water of increased salinity the protoplasm would break through in the form of fine threads. One side of the thread would be more elastic than the other. An increase in volume would cause a bending of this thread, while a decrease would cause a return to the former condition, thus producing a regular rhythmic movement, similar in its detail to the movements of flagellae. The author would derive all of our sense of time rhythm from this regularly repeated rhythmic action in the primeval protein material. (*Nature*, vol. 100, p. 450.)

Experimental. If twins are born in cattle, one twin being male and the other female, it is known that the female will be sterile. Lille demonstrated that, in this case, the male sex organs develop earlier than the female, and secrete some hormone which acts as a sterilizer on the female sex cells. Burns later thought that he had demonstrated a similar result in twin salamanders (Amblystoma) artificially produced ed by grafting together two individuals. Since the normal proportion of males to females is about equal, we would expect in these experimentally produced twins an equal number of similar sexed and of different sexed twins. In reality there was a large preponderance of similar ones, indicating that one sex had influenced the other. Witschi (*Biol. Bull.*, vol. 32, p. 137), repeated this experiment in *Rana* and found reason to believe that male and female determining factors appear at the same time, but that the male is the stronger and can overpower the female.

PROTOZOA. The contractile vacuole of protozoa, with its regular rhythm of pulsation forcing liquid from the protoplasm out into the surrounding water, has been generally regarded as an excretory organ, removing nitrogenous wastes from the protoplasm. Miss Howland (see YEAR BOOK for 1924) was unable to demonstrate that this really is its function. Weatherby (*Biol. Bull.* 52, p. 208) found in *Paramœcium caudatum* that both ammonia and urea develop in *Paramœcium* cultures and that the ammonia is due to the hydrolysis of urea, the latter being the form in which the N leaves the body of the animal. Measurements of the amount of urea found in solutions in which *Paramœcium* had been growing showed how great a concentration the urea would need to have in the fluid of the vacuoles if it were eliminated in that organ. Since micro-chemical tests failed to find urea in the vacuole (the postulated concentration was one that could easily have been recognized), Weatherby decided that urea is not eliminated in this way, but rather through the general surface of the body. The function of the vacuole is to regulate the hydrostatic pressure in the protoplasm. It is well to note in connection with this conclusion that the vacuole is absent from many marine protozoa, where owing to the concentration of the water outside the animal the need for hydrostatic regulation is not so great as in freshwater forms Day (*Journal of Morph. and Physiol.*, vol. 44, p. 363), found that the contractile vacuole in amœba is not a permanent structure but arises from other vacuoles which probably owe their origin to fusion and coalescence of ultra-microscopic drops of soluble waste. The wall of the vacuole is a condensation membrane. Day agrees with the other authors quoted above in concluding that at least a part of the function of the vacuole is to control osmotic gradients, though he thinks it may also have an excretory function.

Heilprin and Hopkins (*Biol. Bull.*, vol. 52, p. 411) recorded observations on *Amœba proteus* indicating that its method of reproduction is by fragmentation into many small individuals, which later grow to full size, though divisions may occur from time to time during the growth process. Full-grown individuals isolated in filtered water would disappear, but in a short time numerous very small individuals appear in the water. This they interpret to mean that the original animal fragments into very minute forms which soon grow enough to be visible under the magnifications employed.

It is generally believed that encystment in protozoa is a protective device, following on unfavorable external conditions. Beers (*Jour. Morph. and Physiol.*, vol. 44, p. 21), found that in *Didinium* encystment occurs most frequently in a range between Ph 6.4 and Ph 8.4 which is also the most favorable growth range, while unfavorable concentrations of H ions are ineffective in inducing encystment.

The question of the function of the contractile vacuole is also discussed by Wolff (*Comptes Rend. Acad. Paris*, 185, p. 678) after studies of this organ in the genus *Hartmanella*, a freshwater form. The rapidity of pulsation of the vacuole bears a direct relation to the activity of the animal in general and is especially rapid on the approach of the time of encystment. Hypertrophy of the vacuole, slowness of systole and irregularity of pulsation, are all symptoms of degeneration. Encystment is a dehydration process and this bears out the suggestion that the rôle of the vacuole is the regulation of water content. Having in mind experiments in which freshwater amœbae had been gradually acclimated to salt-water conditions, Wolff added various salts, as NaCl, KBr, $MgCl_2$, in varying degrees of concentration, to the water containing *Hartmanella* and found that, while traces of the vacuole might persist, there was no pulsation. These movements would return if the animal were again brought into water freed from this salt content.

Hood (*Biol. Bull.* 52, p. 79) studied the relation of *Frontonia* to its contained zoöchlorellae. *Frontonia* with these inclusions requires a medium of a greater stagnation and putrefaction than if without them and may be freed from the zoöchlorellae by being transferred from their natural medium to one of fresh spring water, or the number may be increased by an increasing degree of stagnation or putrefaction. With increase in the number of zoochlorellae is an increase in the number of H ions. Mizuno (*Science Reports, Tokuhu Imp. Univ.*, 4th Ser., vol. 2, No. 4) stated that at a temperature of from 24 to 26° C *Paramœcium* divides at intervals of eight or nine hours. After fission the animals increase in length but decrease in breadth, so that a comparison of sizes must be in terms of area.

CŒLENTERATES. Kepner and Jester (*Biol. Bull.* 52, p. 173) found that, if hydras are kept without food, the green species live longer than the brown, earlier observers having found no difference in this respect. It seems as if the green ones live at the expense of their contained zoochlorellae. Under conditions of extreme starvation the tentacles will be bitten off and digested by the entoderm of the animal, the greatest amount of digestion taking place in the entoderm of the tentacle base. The tentacles become reduced to mere stumps, but later they regenerate. It seems as if the greater amount of digestion in the tentacle bases is connected with the fact that later regeneration is carried on at this point. After this regeneration process, the whole animal is much smaller than it was at the beginning.

Protohydra, discovered in 1868, has been regarded as possibly a larval form. Koller (*Zool. Anz.* 73, p. 97), described one carrying an egg, thus demonstrating its adult condition. The egg is contained in the body cavity though probably derived from ectoderm.

NEMATODES. Zawadovsky and Orloff (*Archiv. f. Entwickelungsmechanik*, 109, p. 750) investigated the mechanisms by which self infection of the host is prevented in cases where intestinal parasites such as *Ascaris* are present. Eggs of this parasite fed to guinea pigs and rabbits passed unchanged through their alimentary canals. The authors concluded that these eggs cannot develop in the absence of oxygen and that lack of oxygen as well as the high temperature of the body in mammals prevents autoinfection. They argue that, since the eggs will grow in living tissues such as muscles, oxygen must be present there.

Van Cleave (*Jour. Am. Mic. Soc.*, vol. 46, p. 214), recorded the discovery of a cestode in the common ctenophore, *Pleurobrachia*, from Woods Hole, this apparently being the first record of such an occurrence in North America. Van Cleave was uncertain of the explanation, but suggested that the parasite was originally in a fish which had been eaten by the ctenophore. Perez (*Compt. Rend., Acad. Sci. Paris*, 185, p 226), describes a *Nectonema* parasitic in a pagurid crustacean, and suggests that it has a life history similar to that of *Gordius*, only in this case the host is a crustacean rather than an insect.

ANNELIDS. In 1925 Reisinger described *Parerogodrilus heideri* n. gen. and n. sp. as a new archiannelid. Meyer (*Zool. Anz.* 72, p. 19), gave the result of a reëxamination of the structure of the animal and a discussion of the homologies found by Reisinger. Meyer concluded that the animal is really an enchytreadid. From the genealogical point of view, it may be characterized as an annelid which has lost the two first somites as well as all of those behind the female sex organs, and is thus a shortened form. Herpin (*Compt. Rend., Acad. Sci. Paris.* 185 (17) p. 869) described the incubation of the eggs of *Leptonereis glauca* Clap. by the female. This annelid swarms, but the male is much more abundant in the swarming than is the female, and apparently emits the sperm before he swarms. The female lays her eggs in a membraneous tube, and remains near them, keeping up a rhythmic movement of her body. Herpin regards this as an intermediate form between those with an epitokous phase and those without it. McIntosh (*Ann. and Mag. Nat. Hist.* 18, p. 402) described in the operculum of *Mercierella enigmatica* an arrangement of blood vessels pointing to the functioning of this organ as a part of the respiratory system, and queries if in other cases the bodies described as ova in the operculum of serpulids may not be blood masses such as he found in this species. If this is the case, the operculum may be an important part of the respiratory system of the annelid.

In *Bouellia* the larva of the functional male becomes mature only if it lives for a time parasitically on the pharynx of the female. Baltzer (*Rev. Suisse Zoöl*, 33, p. 359) demonstrated that this differentiation is in part due to the absorption of materials from the tissues of the female, for extracts from either the dried pharynx or the intestine will produce the same effect as does the parasitic mode of life so far as concerns the typical loss of eyes, pigment and ciliated bands, though the treatment does not lead to formation of ripe sperm. Neutral larvae of the same age and from the same egg-laying show differences in responsiveness to this treatment as well as to the normal parasitic condition, and it may be that there are genetic differences in the larvae, some being male, others female and possibly others neutral.

MOLLUSCA. It has been an unsettled question whether hermaphroditic pond-snails, in the absence of cross-fertilization, reproduce by parthenogenesis or by self-fertilization. Crabb (*Biol. Bull.* 52, p. 67), reared *Lymnaea stagnalis appressa* Say. from eggs and was thus able to work with virgin individuals. He concluded that there is no reason to think that any form of parthenogenesis occurs and that they were all self-fertilized. Orton (*Jour. Mar. Biol. Asso.*, vol. 14, p. 967) demonstrated that after spawning female oysters suddenly change their sex and develop functional sperm. Evidently this occurs as a regular annual alternation, the functional maleness lasting for one or two months. Orton suggests that this may be due to a metabolic rhythm, whereby the type characteristic of femaleness becomes the type characteristic of maleness. In another paper (*loc. cit.* p. 1047) he discusses the relation of this to the X chromosome theory of sex determination. The two are not incompatible, for we may assume that the chromosomes when present superimpose a metabolism of a particular type to which the gonad responds by producing either eggs or sperm. Some fundamental change in the rhythm of metabolism may cause a modification of this action, producing a reversal of sex.

INSECTA. Custer and Hicks (*Biol. Bull.*, vol. 52, p. 258) recorded observations on the nesting habits of two genera of bees. *Anthidium porteriae* does not excavate its own nests but takes possession of the burrows excavated by other insects. In one instance it was seen to drive away a wasp *Odynerus* and her nest. The nest is made of down from plants, and after the eggs are laid and provisioned the burrow is filled with pebbles to the surface of the ground. The nests are not made in close association with one another. *Dinathidium sayi* excavates its own nest, in one case being observed working on two nests alternately. This was also observed for the first time in a wasp *Sphex*. In *Dinathidium*, resin gathered from flowers is used in nest making. The female mates more than once.

Kennedy (*Jour. Morph. and Physiol.* 44, p. 267) discussed the exoskeleton as a factor in limiting the evolution of insects. The exoskeleton in insects has a threefold use: As armor, as protection against drying, and as a skeleton for the development of wings. It has conditioned a small size, thus opening up many limited environments and also conditioned a tracheal system, which speeds metabolism. What might be considered unfavorable limitations are small size, small nervous system, short life, inflexible societies, cold-bloodedness, loss of closed blood system, and a poor development of touch and hearing.

MAMMALS. In Technical Bulletin No. 21, U. S. Department of Agriculture, Bailey discusses the beaver, which he asserts can be profitably "farmed" in many parts of North America. The range where the animal should be easily established in any suitable swamp can be estimated pretty accurately by following the range of the poplar aspen tree. Klugh (*Jour. Mammalogy*, vol. 8, p. 1), discussed the ecology of the red squirrel, which is commonly supposed to kill and eat many nestling birds, as well as to do much damage to trees by nibbling the terminal buds of the twigs. Klugh considered that in both these respects the amount of damage done has been greatly exaggerated. *Nature* for Aug. 6, 1927, contained a note calling attention to a plague of "flying foxes," a species of bat, in Australia. They were reported as occurring in enormous numbers and doing much damage to crops, destroying more than they eat. The note asked for suggestions on combating the plague.

ZULULAND, zōō′lōō-lănd. A portion of the Province of Natal in Union of South Africa, to which it was annexed Dec. 30, 1897. Area, 10,427 square miles; population, in 1911, 219-606. There are extensive sugar plantations, the output of which in 1924–25 was 161,250 tons. See SOUTH AFRICA, UNION OF, for the statistics on Natal.